27TH YEAR OF PUBLICATION

THE FIELD ARTILLERY JOURNAL

JULY-AUGUST, 1937

PUBLISHED BIMONTHLY BY
THE UNITED STATES FIELD ARTILLERY ASSOCIATION

July-August, 1937

CONTENTS

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THE U. S. FIELD ARTILLERY ASSOCIATION

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ARTICLE II OF CONSTITUTION

"The objects of the Association shall be the promotion of the efficiency of the Field Artillery by maintaining its best traditions; the publishing of a *Journal* for disseminating professional knowledge and furnishing information as to the field artillery's progress, development, and best use in campaign; to cultivate, with the other arms, a common understanding of the powers and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country."

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★ A Message to the Field Artillery ★

In my last message I spoke of the necessity of visualizing the ammunition-supply problem in the forthcoming test of the "proposed infantry division." So important and far-reaching may be the conclusions, as a result of the test, that I wish to refer to it again, this time with respect to field artillery fire power.

Colonel Lanza, in articles currently published in this Journal, has shown repeatedly how costly were World War advances unsupported by overpowering concentrations, including heavy calibers, with vast expenditures of ammunition. Nothing in the Ethiopian or Spanish experiences has served to disturb his conclusions.

To this I wish to add that flat-trajectory, high-velocity weapons (so far abandoned by no European division) can deliver projectiles before surprised personnel can, in many cases, take effective cover. Thus, the counter-advantage of high-angle, low-velocity fire, which reduces dead-space areas, may be dearly bought if the gun be dropped in favor of complete division armament with howitzer types; guns and howitzers must be looked upon as complementary weapons, each supplying a need which the other cannot fill.

Again I ask for visualization of this situation when the reports of the test are studied, and that artillerymen everywhere give serious thought to it, subordinating secondary considerations to that mission which the German General von der Goltz enunciated over forty years ago: "The artillery is the indispensable companion of the infantry. It makes room for the latter where it is unable to force its way singlehanded. It prepares the way for the battle, shields the foot soldier from unnecessary losses, when the best forces would be wrecked by too great impediments, and provides it with covering and defense when it is compelled to retire."

UPTON BIRNIE, JR.,

Major General, U. S. Army,

Chief of Field Artillery.

Photo by Major E. C. Ewert, GSC (FA)

"THE OLD ORDER CHANGETH"

On the site of old Fort Stedman, Va., where Grant and Lee struggled for Petersburg in 1864, members of the 1936-37 Class, Army War College, their modern transportation in the background, follow the operation on their maps, the while they hear a sound-amplified lecture on the engagement by their classmate, Major E. H. Brooks, FA.

THE FIELD ARTILLERY JOURNAL

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Italian Field Artillery in the Ethiopian Campaign

(From a study prepared in the Military Intelligence Division, War Department General Staff.)

1. *Terrain.*

a. Northern Front (Eritrea).

Extending southward over 400 miles from the Mareb River, which marked, in part, the boundary between the Italian colony of Eritrea, and the then independent state of Ethiopia, to include the latter's capital. Addis Ababa, lies the high plateau of Ethiopia. It was in this area that the Italian main force conducted its principal military operations during the period October, 1935—May, 1936. The troops employed were predominantly Italian (European), and far exceeded in numbers those operating in Somaliland in the south.

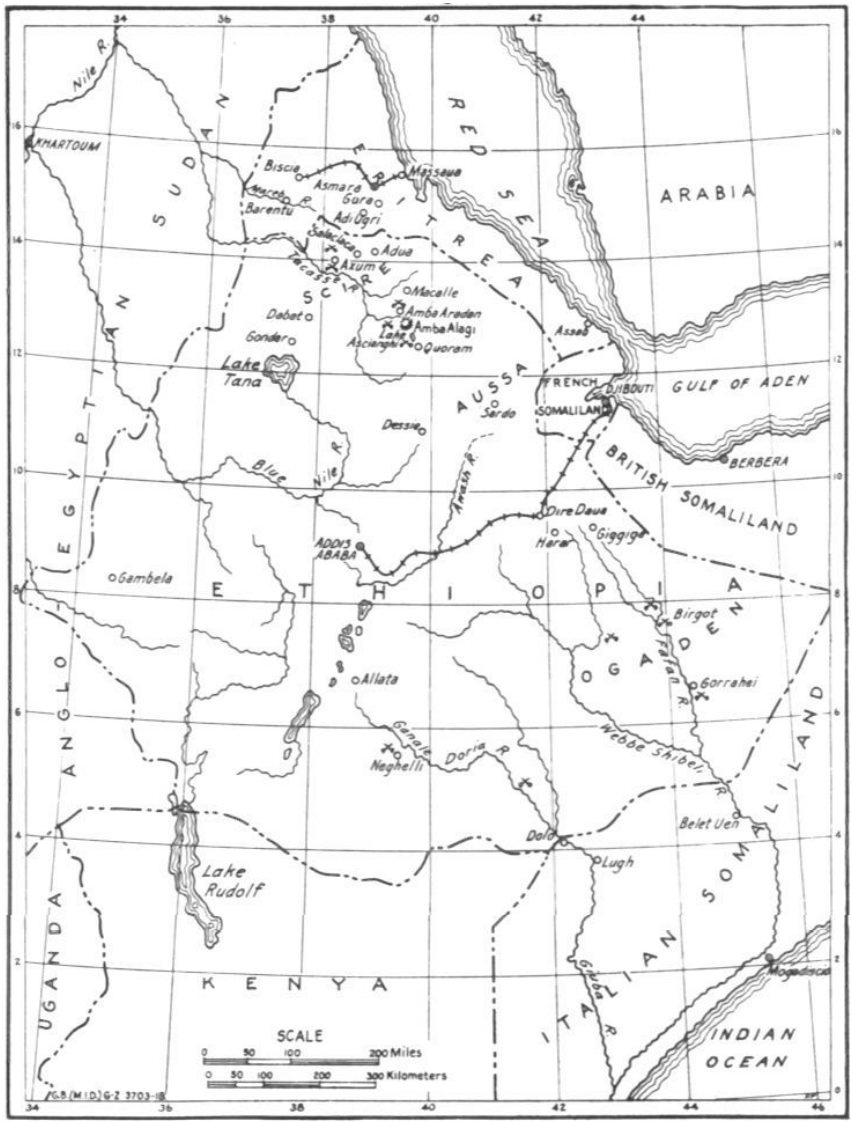
The terrain of the high plateau is about as uninviting for artillery maneuver as are the Rocky Mountains of Colorado. But the 4th Field Artillery (USA) (2.95 pack) made a 1000-mile march in Wyoming and Colorado prior to the World War—perhaps knowledge of this trip added a bit to the vast experience of the Italians with artillery in the Alps and Appenines. In any event, pack artillery constituted the bulk of the artillery increment of the forces sent to East Africa. The plateau is a series of mountain ranges, high peaks which at times reach over 10,000 feet in elevation, deep ravines and gulches, very rocky and rough, and almost devoid of vegetation except along the water courses and over occasional tracts of land where the soil is fertile. Roads were practically nonexistent, and caravan trails constituted the only routes of communication.

The climate is neither unpleasant nor unhealthful. There are generally two seasons—the dry and the wet. The rainy season begins usually in May and lasts through September. It rains very hard at times, streams fill and flood, but mud appears to have had little influence except in isolated instances on the movement of troops or materiel. But throughout the entire year the most important factors, from an artillery viewpoint, are the mists and fogs in the valleys and clouds around the peaks which obscure visibility. With a wealth of terrestrial OP's, this periodic condition was the principal mar to an artilleryman's paradise.

b. Southern Front (Somaliland).

Italian Somaliland is a most inhospitable region. Extending hundreds of miles northwest from the Indian Ocean, it is flat, insufferably hot and arid, and covered with a growth of equatorial thorny, bushy, shrub, which seriously limits both terrestrial and aerial visibility. It is dusty and sandy in dry weather, but after a moderately heavy rain, either in the foothills to the northwest or local in a given area, the trails are either flooded or become quagmires, and both wheeled and animal transport soon comes to a virtual standstill. Two principal rivers, the Scebeli and the Giuba, flow southeast into the ocean, and offer avenues of invasion and communication. Caravan trails offer the other alternative, although, in dry

ETHIOPIA



weather, it is only necessary to clear the shrub to provide a passable road for motors. Some 600 miles inland the terrain slopes upward to a more inviting region of high mountains which bar the way to the capital. Addis Ababa. It rains off and on throughout the year, with definite seasons called the "little" rains and the "big" rains. Fog and mist were not obstacles for the artillery—the thick brush and difficulty in securing good terrestrial OP's were. The

forces employed in Somaliland were much smaller than those used in the north and were preponderantly native.

2. *Organization of the Field Artillery*.

a. Normal in Italy.

The division artillery of the regular Italian infantry divisions in the homeland includes a normal total of 48 guns and howitzers, excluding antitank and antiaircraft weapons, organized into a single regiment of four (4) battalions, as follows:

2 Battalions (3 batteries each) 75/18-mm. howitzers, which can be either packed or hauled. (Weapons of 75-mm. caliber with tube 18 calibers in length.)

1 Battalion (3 batteries) 75/28-mm. guns, usually horse-drawn.

1 Battalion (3 batteries) 100/17-mm. howitzers, tractor-drawn.

1 Battery, 47-mm. antitank, and 1 battery 20-mm. antiaircraft.

b. For East Africa.

(1) *Eritrean Theater*.

With the terrain of the planned theaters of operation and the character of the opposing forces in mind, this normal complement of artillery was reduced materially in the divisions dispatched to East Africa. A minimum amount of artillery for the task at hand was provided. The divisions were reorganized with a view of attaining a high degree of flexibility, lightness, and maneuverability, and to have a high proportion of automatic weapons.

The regular army divisions in the north, seven in number, each had a regiment of mule pack artillery, consisting of two battalions of three batteries each. The armament was the 75-mm. pack howitzer—4 pieces to a battery. Each battalion had a total of 435 mules, of which 120 were in the combat train. This number was probably somewhat in excess of the normal need, but casualties in animals and the necessity

POSITION DE LUXE

of packing the ammunition forward from roadheads were undoubtedly foreseen and extra mules provided therefor. A single battery in one division used the Sardinian type of horse for pack purposes. This battery performed equally as well as the mule pack batteries, and lost from various causes a slightly smaller percentage of animals. The Sardinian horse is of Arab and Barb blood, and is small, hardy, and a good weight-carrier. The medium artillery was eliminated from the divisional regiment.

Five divisions of "Black Shirts" (Fascist Militia), somewhat lighter and with more reduced services than the regular divisions, were part of the northern army. Each had a single battalion of pack artillery of three batteries, furnished from the regular forces.

The two native divisions employed had two battalions of artillery each. This, in connection with the infantry organization of two brigades, permitted splitting a division into two equal parts for detached service. These battalions were motorized, using 77/28-mm. guns. Pack artillery was attached to these divisions during the later stages of the campaign, replacing the old-type guns.

PIECES EN MASSE

The corps artillery available consisted of:

2 battalions 100/17-mm. howitzers
2 battalions 105/28-mm. guns
2 battalions 149/13-mm. howitzers

All batteries were motorized, some being drawn by Pavesi tractors (wheeled) and some by trucks. The battalions were

allotted initially equally to the I and II Corps. The Native Corps was not given any of this artillery. When the III and IV Corps were organized in the winter of 1936, part of the above artillery was put at their disposition for active operations.

This gives then, with Marshal Badoglio's army in the north, a total of 308 pieces of artillery, as the corps units and units with the native corps were two-battery battalions.

(2) *Somaliland Theater*.

The forces in Somaliland, under command of General Graziani, consisted of two European divisions, one Libyan division, two mechanized-motorized cavalry regiments, and some 25,000 natives organized into battalions or "bands." In addition there were auxiliary troops and services. The native troops did the greater part of the fighting.

The single regular army division had a three-battalion regiment (9 batteries) of pack artillery, armed with 75/13 and 75/27-mm. pack howitzers. The one Black Shirt division had a single battalion of 75/13-mm. pack howitzers. The Libyan division from North Africa had a three-battery battalion of mixed 75-mm. mule and camel pack artillery. In addition, there were available:

5 batteries, mountain artillery, camel pack
1 battalion, light artillery, motor-drawn or portee
1 battalion, 100/17-mm. howitzers, tractor-drawn
1 battalion, 105/28-mm. guns, tractor-drawn

This gave a total of 27 batteries of field artillery, or 108 pieces, on the basis of 4 guns to the battery.

This artillery was generally employed where its need could be foreseen, and the prime movers used were varied and fitted to the occasion—from pack, through all means of hauling, to portee. There was no hesitation shown in detaching batteries or battalions from their organic major units and employing them several hundred miles away to furnish additional artillery support to assist in accomplishing a certain mission.

c. Ethiopian Artillery.

To oppose this mass of 416 modern artillery weapons, abundantly supplied with ammunition. Ethiopia possessed probably not in excess of 200 pieces of artillery, some 50 of which, at the most, were serviceable. These were principally old models of assorted types, but included a number of small modern guns of Belgian manufacture. These were the "Oerlikon" 20-mm. antiaircraft weapons and the 10 received and used did some fair work against Italian planes. There were some 120,000 rounds of ammunition in the country, mostly antiaircraft, and all for the smaller calibers. There were no facilities for the manufacture of ammunition or the upkeep of the artillery materiel, and the training of personnel to serve the pieces was a difficult matter. The Ethiopian artillery was neither efficient nor effective, except in isolated instances against aircraft.

3. *Employment*.

a. Positions.

With threats of hostile counterbattery fire and air attacks entirely eliminated, almost complete freedom of choice was given the Italian battalion and battery commanders in the selection of battery positions. Concealment and defilade were not only unnecessary but undesirable, particularly on the defensive, for positions were needed from which fire could be delivered at short ranges with direct laying in the event of possible Ethiopian breakthroughs. Other considerations in the selection of positions were: Near good observation,

HARD GOING

short lines of communication, employment of the fire power in mass under central control, protection from swift rushes from the flanks and rear, and relative ease of ammunition supply.

The Italian field artillery, as is always the case, was most vulnerable when on the march, and, on at least one occasion, suffered severely from a sudden surprise attack by the highly mobile Ethiopian forces. A mule pack battery of the Gavinana (19th) Division, marching with a battalion of infantry constituting the advance guard support, was attacked suddenly in flank near Selaclaca on February 29th, at the time of the launching of Marshal Badoglio's first big offensive to the south. The battery barely got into action and fired a few rounds before being overrun. It lost all of its officers, and the majority of its men were killed, and its guns were in the hands of the Ethiopians until retaken by counterattack the following day with heavy losses to the counterattacking infantry. It is possible that our system of advancing advance guard batteries by bounds from position to position would have obviated this loss—on the other hand, the terrain militated against such employment.

b. Communication.

Radio played a predominant and very vital role with the Italian forces. It furnished the principal air-ground means of communication for airplanes conducting adjustments for the artillery on defiladed targets. It also was a principal method of communication between the higher echelons of command.

When practicable, and it usually was, batteries were congregated in restricted areas to facilitate control. Short wire lines sufficed for artillery command purposes and fire direction. Wire lines connected batteries or battalions to their OP's. Visual signalling was used at times. The lack of wire communication between the artillery and the supported infantry, however, was marked, and the need for its use was felt severely in certain combats, notably that at Birgot in the south.

c. Mobility.

The question of mobility apparently had relatively little influence once active operations began. The types of artillery sent to East Africa were suited to the terrain. The pack artillery maneuvered without great trouble. The motorized units of medium artillery followed the roads when completed. Prior to the larger offensives, preparations were invariably made with the greatest care, and plenty of time was available to enable the artillery comfortably to occupy its positions and assure its ammunition supply. Once the attack was launched and Ethiopian resistance was broken, it became a question of following up the disorganized Ethiopians, usually a great distance, to their next position. The artillery pursued with fire up to the limit of its ranges and then advanced, with infantry protection, and occupied positions for the next attack. The pack artillery easily kept pace with the infantry.

One incident in the north is worthy of comment as illustrating the possibilities of truck-drawn medium artillery under adverse conditions of terrain. Following the temporary Italian reverse near Selaclaca, additional artillery was rushed to support the II Corps in that locality. A truck-drawn battalion of 149/13-mm. howitzers left its position south of Macalle and marched a distance of 500 kilometers in three days to Selaclaca. Marshal Badoglio termed this "an admirably swift march"—it is certainly a noteworthy example of strategic mobility.

d. Fire Support.

(1) *Counterbattery*.

Counterbattery was never a major mission of the Italian artillery for the simple reason that battery targets rarely existed. Whenever the Ethiopians did get a few pieces into position within effective range, their batteries were located promptly and soon silenced, if their relative importance permitted, with intense concentrations of artillery fire.

Most of the Ethiopian artillery was with the Imperial Guard of the Negus, Haile Selassie. A small amount appeared with Ras Mulughieta's forces during the battle of the Enderta, or Amba Aradam, in February, 1936. Two batteries, one of 4 pieces and one of 6, entered into the action in support of counterattacks, but were in time silenced by Italian counterbattery fire. With Italian airplanes dominating the battlefield. Ethiopian artillery could not remain long undiscovered and free from well-adjusted artillery fire.

In the battle of Lake Ascianghi, in which the Imperial Guard made its supreme effort, the Negus had a certain amount of artillery and mortars, the exact amount of which is unknown. On this day, 31 March, 1936, the Ethiopians made their final bid by attacking desperately the Italian position, held by three divisions, to the north of Lake Ascianghi, and there probably the fiercest fighting of the entire war took place. The attack was preceded by a 15-minute artillery preparation of a sort which fell on the "Val Pusteria" Division of Alpini, but the attack itself developed further to the east—another indication of the complete lack of coordination within the Ethiopian forces. But the Italian artillery was so occupied in the defense of the positions against repeated attacks continuing from early morning to midafternoon, that counterbattery could not be included among its immediate missions, particularly since the Ethiopian artillery fire was mostly ineffective.

(2) *Defensive*.

The Italian artillery was handled with skill on the defense and proved itself again to be a most important cog

with ground forces under almost any conditions of combat. Following the temporary loss of the battery near Selaclaca and the spirited fighting in which the entire Gavinana Division became engaged during the rest of the day (February 29th), the II Corps brought its remaining two divisions up, one on each side of the Gavinana, emplaced its corps artillery, and awaited further attack, while organizing for defense. Fire from the remainder of the Gavinana's division artillery prevented the Ethiopians from removing the four captured pieces during the night. On March 2d the Ethiopians again attacked, this time frontally, and principally against the positions of the Gavinana across the level floor of the small valley in which the town of Selaclaca is located. A small hill was occupied as the right of the Gavinana's line and from this hill excellent observation was to be had over all the terrain within the valley. By early afternoon all the corps artillery was in position close behind the front, and, under centralized control, was enabled to maneuver an overpowering mass of fire from point to point as desired. The effect of this fire was such as completely to destroy, both physically and morally, the spirit and will to attack of the Ethiopian troops; the attack was easily repulsed, and the forces of Ras Imru soon began their retreat. During the withdrawal, the artillery exacted severe losses from the Ethiopians with concentrations of interdiction fire placed on the narrow passes in the surrounding mountains, through which the Ethiopians were forced to withdraw. The corps pressed the retreat with its artillery displacing rapidly forward and continuing interdiction fires upon the limited avenues of escape. The Ethiopians throughout the campaign showed a surprising indifference to the staggering losses caused by the Italian automatic weapons but, on the other hand, were profoundly in fear of artillery fire. The moral effect of the latter proved invaluable.

In this engagement Ras Imru's army was completely defeated and it was never again effective as a cohesive force. The following Italian artillery took part:

2 battalions medium howitzers: 1 battalion medium guns; 9 battalions light guns and howitzers. Total, 12 battalions, 33 batteries, 132 pieces. The corps artillery expended some 8000 rounds of ammunition, or approximately 222 rounds per gun; the division artillery consumed some 4000 rounds per division on the average—a total of about 20,000 rounds of ammunition during a three-day combat.

Of course the absence of Ethiopian artillery and aviation gave the Italian artillery complete freedom of action, and excellent observation, timely secured, guaranteed the effectiveness of its fires. An altitude of about 6000 feet in this area, with the resultant decrease in density of air, permitted longer ranges, and the pursuit with very effective fire up to the limit of the respective range of each type of weapon. The artillery was extremely well handled in the course of this engagement.

The second major defensive battle fought by the Italian forces in the north was that of Lake Ascianghi on 31 March, 1936, referred to previously. While completing the logistical preparations, including the construction of roads, for a further advance to the south, the I and Native Corps occupied a defensive position with three divisions (two of which were native) in line and three divisions and additional units in reserve.

The position was a strong natural one, and its front was well covered with the fire of automatic weapons. The artillery was carefully emplaced with fine observation available and had time thoroughly to prepare its fires in advance.

The attack, which had been expected, was launched early in the morning. It was broken up by the fire of automatic weapons and artillery concentrations, and the Ethiopians, reassembling to the rear under cover, became targets for intense artillery concentrations. Repeated attacks against different portions of the position met usually the same fate, for the Ethiopian piecemeal tactics permitted the ideal employment in mass of the Italian artillery. On at least three occasions, however, the Ethiopians penetrated the Italian position, thus preventing the artillery from giving close-in support. These penetrations were ejected by automatic-weapon fire and counterattack, and when the best troops of the Negus finally broke in the late afternoon, after having fought all day with terrible determination and having taken enormous losses, the Italian artillery pursued with its fire and put the finishing touches to the shattering of Ethiopian morale. Through persistent bombing and ground-strafing, the air force kept Ethiopian morale at this low ebb, caused additional losses, and prevented the Ethiopians from reorganizing and occupying a defensive position. The artillery did its work well during this strenuous day, but, on the other hand, conditions were extremely favorable to its effective employment.

(3) *Offensive*.

The employment of the Italian artillery in the offensive was characterized by careful reconnaissance, deliberate occupation of position, detailed preparation of data for concentrations and schedule fires, decisive employment in mass, generally under centralized control, and fullest use to exploit a success when victory had become assured.

The six-day operation known as the Battle of the Enderta, or Amba Aradam, well illustrates its effective employment on the offensive. This was Marshal Badoglio's initial major operation after assuming command and was launched during the period February 10-15, 1936, after all preparations had been made with the greatest care. Seven divisions participated, supported by nine battalions of corps (or army) artillery. Ras Mulughieta, the Ethiopian Minister of War, occupied the prominent flat-topped mountain, Amba Aradam, and its supporting defenses, with a force estimated at 70,000 troops. The Italian force totaled well over 100,000. It is interesting to compare these numbers with those engaged in our battle of Gettysburg—approximately the same.

The operations of the first two days, which included the approach march and development, met with little opposition, as the area was well covered by the emplaced Italian artillery. On the third day, with a low fog overhanging the valleys precluding artillery observation and making infantry contact difficult, the advancing columns, three in number, were each struck by Ethiopian counterattacks, which had initial successes, caused severe losses and held up the advance. The corps artillery displaced forward meanwhile and, after a delay of two days due to rain and continuation of the fog and mist, was ready to support the continuation of the attack with carefully prepared fires centrally controlled. The devastating effect of this fire on Amba Aradam was too much for Ethiopian morale. The artillery fire throughout this action is reported to have been especially effective. Batteries were placed in positions just off the road and jammed close together to facilitate control. Six batteries were in an area not a great deal more than 150 yards square. Ammunition supply was a simple matter and the 276 pieces of artillery taking part never lacked sufficient ammunition to enable heavy concentrations to be put down wherever needed on call and to maneuver this mass of fire from point to point with the

AMBA ALAGI

fine observation available after the fog lifted.

This offensive operation is typical of the several major attacks by the Italian forces in the north, in which the effectiveness of the artillery was always notable, and undoubtedly due in great part to its employment in mass under central control and under special circumstances as to terrain, climate, and enemy.

Conditions with General Graziani's forces in Somaliland were greatly different. In what was probably the hardest-fought combat in that area, the Battle of Birgot, engaged in by General Frusci's column, the field artillery was on the whole ineffective, due to several causes—the defensive tactics of the Ethiopians who occupied caves in the banks of ravines and similar places, where they could be neither located by the air forces nor neutralized by the artillery; the thickness of the brush and consequent difficulty of locating targets, and the almost impossibility of the artillery securing even fair observation. Two battalions of camel pack 65/17-mm. howitzers and one battalion (2 batteries) of tractor-drawn 100/13-mm. howitzers were engaged, but the automatic weapons and fighting ability of the Arabo-Somali soldiers, well led by Italian officers, accounted mainly for the success at Birgot.

e. Ammunition Supply.

The Italian "Artillery Service," which corresponds closely to our Ordnance Department, handles and distributes all classes of ammunition. Prior to the big advances in the north, the principal depot at Asmara in Eritrea was stocked with a reserve of 10 days' of fire of all classes of artillery ammunition, and was equipped with the necessary workshops for the repair of materiel, equipment, and fire-control instruments.

Advance depots were established well forward to serve the troops in each important area or for each separate major unit. Combat units drew the necessary ammunition from these advance depots directly with their own transportation.

No known shortage of artillery ammunition existed under this plan of supply.

f. Conclusions.

The outstanding features of the organization and employment of the Italian artillery in Ethiopia are: The care with which it was organized, especially as to type and amount, for the job at hand; and its employment in mass on every possible occasion and up to the limits of its capabilities.

While aerial bombing was employed on occasions for preparing the way for the infantry attack or in supplementing an artillery preparation, the results obtained by the aviation show that it cannot replace artillery for the close support of the infantry either in attack or defense. It cannot equal artillery in accuracy nor in capacity to deliver continuous and concentrated fire when and where needed, and with numerous targets beyond the range of artillery always available, it appears that the mission of infantry close-support preferably should be left to the artillery, while air units devote their attention to more distant targets.

The importance of artillery in military operations in any theater of war and against any class of opponent is again emphasized even after discounting the special circumstances under which it was employed in Ethiopia.

●

8th Field Artillery Boxing Team

HAWAIIAN DIVISION CHAMPIONS

1ST ROW, LEFT TO RIGHT: **PVT. CHARLES LOOMER, PVT. ANDREW KRALOSKY, PFC. MARTIN HOLM, PVTS. ABRAHAM MALINA, JOSEPH SCRIMA, SHERMAN LATOUR.** ***2ND ROW, LEFT TO RIGHT:*** **CORP. JOSEPH BARKER (HEAD TRAINER), CORP. WILLIAM TOWNSEND, SGT. ALFRED ROGACKI, LT. S. F. HORSTMAN (COACH), LT. F. D. ATKINSON (HEAD COACH), COL. CORTLAND PARKER (COMMANDING OFFICER), LT. E. J. GRECO (COACH), PFC. FRANK DILUCCA, PFC. STEPHEN KADASH, PFC. FRANK MOODY (TRAINER).** ***3RD ROW, LEFT TO RIGHT*****: CORP. ROBERT HUMPHREY, PFC. ROY GOSSETT, PVT. GEORGE DENNIS, PVT. FRANCIS LLOYD, PFC. NEAL MILAM, CORP. ANDREW FEKETE, PFC. CHARLES KRAVITZ, PFC. ANTHONY KIRVILAITIS, PVT. THEODORE DEMARIANO, PVT. JOHN GILLINGHAM.** ***4TH ROW, LEFT TO RIGHT:*** **PVT. DENZIL DUNN, PVT. FRANK FORNARA, PVT. ANTONIO LICAUSI, PVT. WILLIAM CLICK, CORP. JULIAN ZEBROWSKI, CORP. FRANK BAILEY, PVT. THOMAS REYNOLDS, PVT. ANTHONY PODGURSKI, PFC. PAUL STEFAN, PFC. BENNIE EPSTEIN.**

War Dogs

BY CAPTAIN HOWARD W. BRIMMER, FA

WHERE the friendship of man and dog began we shall never know, but the bones of dogs lying side by side with the bones of primitive men tend to show that it was in very remote times.

Dogs have been the indispensable agent in the hunting field, a member of the family in the home, a beast of burden on the march, and a companion in arms while at war. From the earliest times, so history tells us, dogs have been employed as auxiliaries in war. Plutarch wrote of their employment by the Greeks in the defense of their cities. The Cimbrians used them to defend their chariots in the retreat from the Romans. Philip of Macedonia used a large number of mastiffs in tracking down the mountaineers while conquering Argile.

The Huns of Attila confided the safeguarding of their camps to dogs of colossal size and strength. It is believed that Phoenician traders introduced the mastiff to England in the 6th century B.C., but it is recorded by the Romans that they found the breed firmly established there in 55 B. C., where the dogs were used for warfare and hunting. A fourteenth century manuscript relates of dogs being equipped with mail, on their backs was fastened a brazen vase containing a resinous substance and spirits; with the latter set in flames, they were turned loose on the enemy, the resulting smoke screen and ferocious attack of the dogs on the charging horses and riders, were sufficient to disrupt the attack. The famous dogs of the Knights of Rhodes were mastiffs brought from England; it was claimed that these dogs could tell the difference between a Turk and a Christian and treat him accordingly. The dogs employed by the Spaniards against the American Indian were of bloodhound strain, they were of such utility and held in such favor that the King of Spain decreed that they should be issued a regular ration, and that a pension be established for their maintenance. It is recorded that the Indians were more in fear of the hounds than they were of the mailed horsemen. The Earl of Essex, in suppressing the Irish rebellion during the reign of Queen Anne, is said to have employed the use of 800 bloodhounds with the army.

The valor of the Irish wolfhound has come down to us in song and story. In the Welsh village of Beth Gelert (the grave of Gelert) Llewelyn the Great, King of Wales, erected a chapel over the grave of Gelert, a wolfhound presented to him by King John of England in 1205, to commemorate the faithfulness of a great dog to his master's family.

The name of the French dog Moustache was well known during Napoleon's campaigns. Napoleon, in writing to General Marmont, had said, just before the battle of Aboukir (July 25, 1799), at Alexandria: "You should have a large quantity of dogs which can be made use of by posting them in front of your fortifications." When encamped with his regiment at Alexandria, the first night. Moustache was the means of detecting a surprise attack; he fought at Marengo; saved the standard of the regiment at Austerlitz, for which he was decorated by Marshal Lannes; served in the Spanish campaign; and was finally killed on the field of battle after the siege of Badajoz. And so on down through the years of military history the

dog has, through his faithfulness to his master, fought with him and defended him, tracked down his enemies, and by his superior senses, has given warning of their approach.

In modern use of dogs, the Germans were the first to take advantage of traits other than those of attack or defense. The day of the fighting dog was over; modern methods of warfare, modern weapons, had lowered their efficiency as a fighting unit. But there still remained their fleetness of foot, the understanding of the spoken word or gesture, sense of direction, the intelligent acceptance of discipline, and the blind faith in the master.

—Photo by U. S. Signal Corps

CAPTURED GERMAN MESSAGE DOG. HQ 92D DIV. ST. DIE. FRANCE, SEPT. 25, 1918

The German Jaeger battalions were the first to attempt this experiment. Their use as draft animals and as burden carriers were well known—the dogs of Belgium and Alaska had demonstrated that—but they believed that the dog was particularly useful in the service of security and information, in carrying reports from advance patrols, in assisting outposts, maintaining communication between posts and pickets, and to a lesser degree in hunting up missing men. This experiment was first tested out at Goslar in 1885-86, and the dogs were first used in maneuvers in 1887. Various types of dogs were tested; bird dogs, poodles, and shepherds were those mostly used and found suitable for training, the prime requisite of the dog being perfect health, robust body, sinewy legs, acute ears and nose, docility, endurance, and watchfulness. These experiments proving satisfactory and worthy of continuance, we find the results interesting, as obtained in the second field trials held at Oels in Silesia in 1900. Here 16 dogs were tested, the dogs belonging to battalions of the Jaegers and of the Guards. There were 5 collies, 2 short-haired German setters, 4 sheep dogs, 1 poodle, and the rest crossbred. The young dogs had to carry messages from a picket to a reconnaissance party and back, covering a distance of 2½ kilometers, the old dogs, 3 kilometers. The dogs performed this task in a most satisfactory manner, averaging about four and a half minutes to the kilometer. Of the different breeds, it was determined that the poodle had made the best performance, followed by the five collies, who were crosses of English and Scotch sheep dogs. The drawback to the use of poodles was that, as they grew older, they lost interest in the task assigned to them. The sporting or hunting dogs worked admirably, except that, if game crossed the trail, they were easily diverted.

A correspondent who was with the Boxer Expedition wrote that it was always delightful and interesting to watch the movements of the dogs which accompanied the German artillery. Upon one occasion where it became necessary to shell a Chinese patrol, the orders were brought by a dog five miles, in a very short time, and the dog was standing quietly by, as the guns galloped up. In the war in Cuba. Captain Steele, of the

American cavalry, used a dog called "Don," and he asserted that it was owing to this dog's service that no detachment with which it went was ever ambuscaded. He says, "Dogs are the only scouts that can secure a small detachment against ambuscade in these tropical jungles." Don went through the entire campaign, lived for more than a month on scraps of bread and bacon and, during the day, covered more than six times as much ground as any man of the column.

In 1904 the German Jaeger battalions adopted as standard equipment the messenger dog, each company having two trained dogs, and at least four more under training. At this time the Airedale seemed to be the favored breed. In the next ten years the use of the shepherd became more prevalent, the experiment being extended to include the use of the dog as an ammunition carrier, and for ambulance work.

About this time an Englishman. Major E. H. Richardson, a dog lover and trainer of repute, became deeply interested in the use of dogs for military purposes. He had always kept in touch with all the work being done with dogs for the army and police on the continent. On a visit in the Highlands of Scotland, his ardour in the work received an added impetus. On walking over the moors one evening, he noticed an obvious foreigner engaged in examining a shepherd's dogs. He was a government agent, sent over by Germany to purchase dogs for the army. This episode roused in him an even greater incentive to work on the training and experimenting with his own dogs, so as to make sure that British dogs should be kept in Britain for the use of their own soldiers. The German agent told Major Richardson that the Highland sheep dog was most excellent for the work required, and that in Germany they had nothing to compare with them. Major Richardson, hearing of a training school for dogs in Lechnernich, Germany, went there, observed their methods, and purchased one of their dogs to aid in training his ambulance dogs, which were to be used in searching out the wounded. He likewise trained dogs for police work, and as watch dogs. He became active in visiting army maneuvers where dogs were in use, and was frequently called upon to judge their contests. Training, judging, and observing the different methods in use. Major Richardson was storing up a fund of information that was to prove invaluable to the British government when it realized the importance of the military dog in warfare in 1914-18.

Major Richardson relates an interesting account of the use of war dogs by the Riffs in the Spanish campaign in 1908. He had taken one of his bloodhounds to Morocco to be used in ambulance work with the Spanish Army. There he saw a queer trick the Riffs used to play. They dressed up dogs in flowing burnouse and some sort of turban, and putting them over their lines, caused them to run along the front to another point. At a distance it was not easy to judge whether or not this was a man creeping over the ground. Fire was directed to the spot by the Spanish, and the object of the Riffs, to draw the attack and locate the position of the Spaniards, was accomplished.

Major Richardson spent some weeks in the Balkans observing the use of the Albanian sheep dogs as sentries with the outposts on the military frontier. These dogs were fierce to strangers, large, and well developed. He also assisted the Dutch Guard Regiment at the Hague, and the Grenadier Regiment at Brussels, with the training of their dogs. In 1910 in the Balkan war, he observed the Bulgarians using their sheep dogs as sentries with their outposts.

In 1911 an expedition was decided

upon by the Indian government against the turbulent Indian Abors. Mr. Richardson furnished two Airedales which were good sentry dogs. They were used by the Gurkha scouts in the advance up the mountain passes, and by timely warning they prevented an ambuscade. The dogs were used without an experienced trainer but, even at that, the service they rendered encouraged Major Richardson to continue his work. Likewise in 1911, the Italians, in their expedition against the Turks in Tripoli, used dogs as sentinels; they were chained in small dugouts about 400 yards ahead of the sentries. With their patrols to assist in detecting the enemy, they used the huge Maremma sheep dogs which are to be found on the plains and mountains around Rome.

In 1914, just prior to the war, Major Richardson was asked by the Russian government to judge the competitive trials for dogs belonging to the army and police. The popular interest centered in the army contingent furnished by the Life Guard Hussars, the Preobrajensky, and Ismailovsky Guards, and other regiments. Many of the trials were performed under fire, and only a few of the younger dogs showed any trepidation.

—Photo by U. S. Signal Corps

GAS ATTACK ON A TRENCH, AMERICAN SOLDIER WEARING GAS MASK AND SENDING WAR DOG WITH MESSAGE. TRAINING EXERCISE AT CAMP KEARNEY, CALIFORNIA

In France, just prior to the World War, we find a great deal of attention being paid to the training of dogs for messenger and outpost service. They were used in this connection with the Chasseurs and Alpine Regiments, and had been found to be of great service in campaigns in Algeria and Tunis. Their main establishment was built at Fontainebleau.

In Austria they were used on the Italian frontier, and in Bosnia and Dalmatia. The Alpine Jaegers, Kaiser's Jaegers, the regiments in the Tyrol, and the Bosnia-Herzegovina Infantry Regiments all had large numbers of dogs amongst them. The government training schools were at Wels, in upper Austria, and at Serajevo.

It seems strange that the British, a nation of dog lovers, had entirely neglected this field of training. The only regiments possessing any dogs at the outbreak of the World War, were those that were presented by Major Richardson, who, throughout the confusion of the first few months, redoubled his efforts in working on purely military dogs. The demand grew for trained animals, and such official pressure was brought to bear that the War Office, in response to the increasingly numerous requests for messenger dogs from the front, asked Major Richardson to form an official training school for these dogs.

A war-dog school was established at Shoeburyness, where dogs were trained for military service, and selected men were instructed in their use and handling, later accompanying the trained dogs to France, usually in groups of three to a team. The system of training that Major Richardson (now Lieutenant Colonel) used was "the one-way system"; the team of three dogs was taken up with the front echelons, and there

released as the occasion demanded, the dog returning to his keeper at the communication headquarters in the rear sector. This differed from the German system where they employed "the liaison system," the dogs being trained to run between two keepers, one keeper remaining forward in the firing line and the other at headquarters. The British thought their system the better of the two because, if the forward keeper became a casualty, it did not disrupt the team; otherwise it would necessitate the withdrawal of the whole team for breaking in a new forward keeper. In addition it was much easier to train a dog to return to the keeper who was the only one allowed to feed him. Consequently the dog would always return to the spot where he had left his master.

Colonel Richardson's dogs were primarily trained as messenger dogs, and in this field they excelled. They were of high intelligence, retentive memory, and had an exceptionally keen sense of smell. Physically they were small enough to get through where no man could hope to; they moved quickly over rough ground, and were less susceptible to chemical agents. The late Earl Haig, in his final dispatch on the war, paid a special tribute to the work of messenger dogs in the field. Airedales, collies, and lurchers were used to a much greater extent than any other breed, possibly because those breeds were more prevalent than any other at the time of the emergency. "Hounds," says Colonel Richardson, through whose hands all the British war dogs passed, "are untrainable; I have succeeded in training one or two to carry messages but when the distance is above a mile, the hounds seem to lose interest." Another curious thing that Colonel Richardson observed was that a dog which carried his tail curled over his back or sideways, was rarely of any value for individual war work. It seems that this method of carrying its tail is an indication of a frivolous character, unsuited for the serious duty required of a messenger or sentry dog.

The dogs actually used were of no standard breed, but possessed those qualities heretofore mentioned; in fact the outstanding messengers of the war were mongrels. The dogs' training supervisors were usually noncommissioned officers, experienced men, familiar with their handling. The conductors, or trainers, with their assistants, were selected privates of quiet but determined character, who were expected to become the masters of their charges, and conduct them to the theater of operations. It was not requisite that they should have worked dogs before, but it was essential that they take interest and show zeal to learn, and that their conditions of service be such that they would remain with their company for some time to come. The course of training extended to: (1) Handling on the leash, (2) Development of watchfulness, and (3) Going and returning.

The dog is promptly broken to the leash, he is habitually constrained by it except while at work and when in his kennel. Consequently he is accustomed to be by his handler, to look to him for guidance, protection, and companionship, to return to him, only, for his comfort. On the leash he is taught to walk at heel, without pulling or dragging; punishment is inflicted sparingly, likewise rewards. The dog obeys as a matter of course.

The German system of training included the foregoing, but when a dog was to be used as a liaison messenger, he was taught to go and return at command. A good messenger dog would do that frequently, and up to a distance of three miles. The intermediate part of this training was retrieving, running back, and retrieving lost articles; running forward and retrieving an article

carried out by the assistant; dispensing with the article retrieved, and substituting the pouch for messages; and, finally, extending these exercises over greater distances. A week is considered necessary to teach the dog to remain in place and then to follow, fourteen days to work with a retrievable article, then a period of eight weeks carrying an object between the trainer and his assistant. All this training is mixed with exercises tending to develop the physical prowess of the dog, such as leaping barriers, swimming streams, racing other dogs up to 500 meters, working through wire and barriers; these exercises being performed in the vicinity of small-arms and artillery ranges, to accustom him to firing. The period of substituting the messenger pouch for the retrievable object is a vital one; great pains must be taken to have the dog understand that it is the object placed in the pouch that is to be delivered. Finally, a carrying case is attached to the dog, in which carrier pigeons may be placed. When a dog will deliver them up to a distance of five kilometers, over difficult terrain, hazardous conditions, either by daylight or dark, he is considered trained.

So much depends on the handling that the proper selection of the trainers is of vital importance. The dogs should never be worked to such an extent that they lose their keenness in carrying out their mission; their work should be play for them, with the surety of understanding and reward on the completion of the task, and it is at this point that the trainer and his assistant must realize the limitations of their dogs; to keep them always keen to complete their tasks, never demand more than they are capable of performing, and never perplex the dogs by their own actions. In testing the dogs, the runs should be over ground other than the training area, through villages, heavily traveled roads, troop and barrack areas, in storms, and at night. Under the last condition it was found that the dogs performed at their best, traveling faster, and in a straighter line. To accustom the dogs to small-arms firing, they can be worked between the firing line and the pits, to artillery between the OP and the guns, or to and from liaison officers. One of the hazards to be overcome in the use of dogs around friendly soldiers, is the habit of soldiers to try to attach dogs to themselves, pet them, and share their food with them. But disciplinary measures will overcome that, and the command be made to understand that no one is to interfere with the messenger dog except his handler.

But the work of the dogs of war was not limited to the front. Where the motor was helpless, where the horse powerless to aid, there came the sled and pack dog to the rescue. Alaska and Labrador contributed the motive power for the sleds that kept the men in their mountain trenches in the high Alps, provisioned and munitioned in the dead of winter. In four days, after a heavy snowfall, one kennel of 150 dogs moved more than fifty tons of food and other supplies from the valley below to the front line on the mountain above. In the Vosges Mountains, more than a thousand Alaskan sled dogs helped to hold the Germans during the last year of the war.

All reference texts quote numerous citations where the use of dogs was of inestimable service—"Satan," the messenger who saved the fortress of Verdun: "Creamy," who helped the 3rd Londoners from being cut off on the right of Villers-Bretoneux, when a foot messenger couldn't get through but the dog did: "Tweed," a rough-coated English sheep dog, trained for liaison work, who ran all night bringing his messages backward and forward on the Amiens front. There was "Boxer," who on one

occasion went over the top with the Kents. He was released at 5:00 AM and reported in at 5:25, having covered a distance of four miles, running through mud, belly deep, most of the way. It took a man two hours to make the same trip.

The United States Army at present is comparable to the British at the opening of the war, in that we have no dog service, but we do have a service comparable to that of Lt. Col. Richardson's. At Whippany, on the outskirts of Morristown, New Jersey, is "The Seeing Eye," a branch of the breeding station established by Mrs. Harrison Curtis at Fortunate Fields, near Vevey, Switzerland, for the purpose of training German shepherd dogs. At the head of the American branch is Mr. Elliott Humphrey. Their purpose in establishing the station at Fortunate Fields was an experiment in breeding shepherd dogs for character. It was this research, of which the first findings began to interest geneticists all over the world, that led to (and was interrupted by) the establishment of "The Seeing Eye," for the blind. The main strain of the dogs used has been established by Mr. Pumphrey. Breeding stock has been interchanged with that in Switzerland, and that purchased in local villages or farms. No dog is ever bought for training from a kennel. The dogs, at the age of eighteen months, are put through three months' training, then one month with the blind man or woman, who for the next ten years or so, will be their master and constant companion. The three months of training is divided up into one month of obedience, one of guidance, and one of disobedience. The latter is practice for the innumerable occasions when the dog's blind master will order her to do something, which she knows, for his sake, she must not do. It is in this course in disobedience that nearly all the other breeds fail, even the French poodle.

Mr. Humphrey's prime purpose is to train the instructors; under his system it takes three years to make an instructor, and five to make a superintendent.

From "Fortunate Fields" go dogs, not only to lead the blind, but also to do liaison work with the Swiss Army, police work in Switzerland and Italy, and guard work in penitentiaries in New York and Pennsylvania. Their breed of dogs is considered 95 per cent teachable.

Mr. Humphrey and his instructors could form a skeleton framework on which to expand an Army training center for dogs.

At present the general situation is more or less as follows: The continental armies of Europe have a well-established messenger dog service; Japan, an imitator of practical military methods, has hers, all capable of field duty. The U. S. Army has none. The question arises: Are the means available in this country for such service, and if so are they justified?

As to the question of supply, it seems to be ample, although untrained. There are many German shepherd dogs, retrievers, terriers (Airedale type), and our own cattle and sheep dogs. There is a limited supply of the New England shepherd, mostly of collie ancestry, and a large number of Rocky Mountain sheep dogs. The latter, about 20 to 22 inches in height, have a moderately long

—Photo by U. S. Signal Corps

"MUTT," YMCA DOG WHO CARRIED CIGARETTES TO TRENCHES EXPOSED TO FIRE, AEF

coat, in every color possible to a dog. They are not recognized for the show bench, but have ancestry that traces back to every variety of sheep or cattle dog. Far from handsome, they yield in intelligence to none. A well-trained sheep dog will handle up to two or three thousand sheep or more, obey arm signals up to a quarter of a mile, and the signal will be as promptly obeyed as in a well-trained battery.

Our service of communication depends upon foot and mounted messenger, telephone and telegraph, visual, sound, pigeon and radio, all furnished, and in practical use in our service. It seems impossible that all these might fail. Compare the present with 1918: the foot and mounted messenger remain the same, except that the latter is augmented by faster motor transportation, and the aeroplane; the multiple use of lines for telephone and telegraphy has been improved; greater range has been established for visual signaling; the homing instinct of the carrier pigeon is as true as ever; and by breeding and frequent tests, by our amateurs and professionals, the flight of the birds has been improved. Especially is it true that the new inventions and improvements in the use of radio, making use of the short wave both for telegraphy and voice, have opened up new channels for an increased number of radio nets.

But unfortunately along with the improvements in communication, means of interfering with it have likewise improved. The human messenger is more apt to be hit by improved and more rapid small-arms and artillery fire; better screening agencies, antiaircraft fire, and the development of faster pursuit ships, will interfere with visual and airplane observation; telephone and telegraph may still be disrupted by artillery fire; pigeons are still limited to daylight flying and the use of a permanent loft, and the radio, in its present form, has been untried in combat. Major General J. B. Allison, Chief Signal Officer, in a recent article. "Has the Army Too Much Radio?", brings out several pertinent facts, one being that "a war-strength field army under present allowances will have about 2,000 radio sets in more than 327 nets. . . . However, before we make a positive statement, and say there definitely will be too few channels, we must know the character of operations in which we will be engaged." In view of the above, with the air jammed with our nets to the maximum, how about the enemy army opposing us, if—and we may take it for granted that he likewise has modern equipment—he brings into the same frequencies, 2,000 more radios? The question may well be asked: Will the radio function when desired?

Possibly the best proof of the serviceability of the messenger dog is the fact that it was estimated that there were 7,000 casualties suffered by dogs in the war, and that 10,000 were in use at the close of the war. The British had doubled the dog schools three times, had requested the public by a publicity campaign to send their pets to the schools, and at the end of the war had just ordered the expansion of their schools again. The Germans, it was estimated, had 6,000 trained dogs available at the start of the war; in addition to the dogs with the troops, they had a trained reservoir of civilian police dogs on which to draw.

Their use was proof of their serviceability. Their elimination should not be final until it has been definitely proven that their services are no longer needed.

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First in Fort Knox boxing shows was Btry B 68th FA; second, Hq Btry 68th FA. . . And Private Herman, 3d FA, wins open jumping event in enlisted class at Fort Sheridan Horse Show.

Training to Jump

By COLONEL O. A. DICKINSON, FA.

AS an aid to training in horsemanship, the Twelfth Field Artillery has built a Hitchcock jumping pen. Not only green jumper prospects but old performers who have acquired bad form and vicious habits in approach and takeoff are profiting by its use.

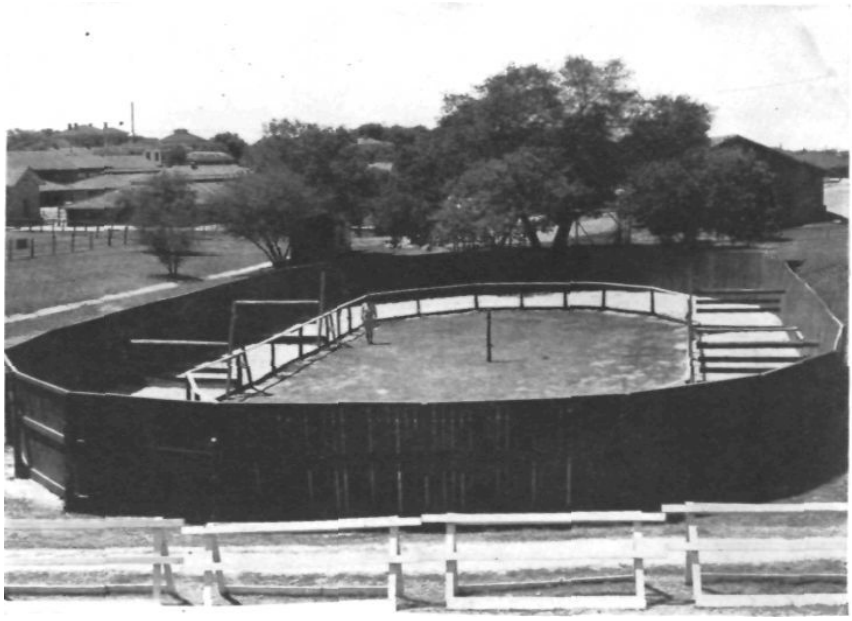
The pen was constructed under the direct supervision of Major R. Townsend Heard, assisted by Second Lieutenant Frederick C. Bothwell, Jr., and the work was done by details under Sergeant E. V. Mitchell, and Mechanic Allen F. Deskin, all 12th FA.

The pictures show the completed pen and a green 4-year-old filly, "Heady," doing her daily dozen. I purchased this thoroughbred at Alamo Downs track last year. She is by Beggar Boy, out of Regular Girl. At present she jumps in the pen from a standing start, at the word of command, over obstacles sometimes over three feet. The photos were by Mr. C. Ekmark, ex-cavalryman and now Fort Sam Houston photographer.

The following extracts from a regimental order describe the use of the pen:

There are four permanent counterbalanced jumps of adjustable heights in the ring, heights of jumps indicated by painted white lines on the fence (3 to 5 feet). On the north side is a movable (in width) triple in-and-out (height of mid-bar set at 3 feet). This will permit variations in the size of the triple according to length desired. Don't put in the triple until horse does well on the regular course.

Only one horse will be on the track



at a time, and all other horses inside of the pen will be tied to the post, in center, or held in hand. The number of horses inside the pen at one time should always be kept at a minimum, and under no circumstances will any horse (unless on the track) be left loose. Keep the horse-on-the-track's attention on the instructor's voice and commands.

The idea of the Training Pen is to train horses to jump properly—that is easily, safely, and entirely balanced. In order that this may be accomplished, a definite program should be planned for each horse to meet his special needs — remembering no two horses need exactly the same work, due to their abilities and various stages of training. Generally speaking, however, the following conditions should be sought in all horses if they are ever to be safe, enjoyable, and able cross-country horses:

The horse needs to be taught:

To come into all jumps at a collected gait and balanced: never to rush a jump.

To jump off his hocks. (This is most important.)

To fold his forefeet well under his chest.

To look well ahead at the coming obstacles to decide at once when and where he should take-off, and to be alert even when an unexpected obstacle is encountered.

Teach the horse to go and stop, and to take the track on different leads by your voice, and teach him to

stand still when you want him. Teach him not to run away at your approach.

In order to accomplish this, you must start at the beginning and then gradually progress. The first step is to bring the horse to the pen on a lead rope (about 8 feet long) and in a halter (no bit is worn as it is very important that the mouth is never pulled). Put the jumps down as low as possible (1 foot) and then lead the horse up to the jumps and have him stand *quietly* on one side (have someone hold him there at first if necessary), and then you get over on the far side of the jump. Pet the horse to quiet him. At a signal from you, have the horse come over the bar—never mind how he does it at first—gain his confidence, and obedience to your commands. Try this several times again, petting the horse when he does it, or giving him a piece of apple or carrot at times. After he has done this 6 or 8 times, that is enough for one lesson. The next day do it again. When he does this well after 2 or 3 days, you can raise the bar to 18 inches height, and you will notice the horse beginning to jump *off his hocks*.

Right here you can ruin your horse by going too fast. Only when you see your horse always is jumping off his hocks should he be turned loose on the track, and at first only at a trot; finally, at a collected canter. But no matter how well he is trained, do not fail to repeat part of each day's lesson on the lead rein, keeping him alert and obedient. Remember, no horse can be balanced unless he jumps off his hocks—this is true form-jumping and the only safe jumping. Notice, in the illustrations: No head is going up when the horse is coming down, and no head is coming down when the horse is rising; the knees are well folded, and the horse lands "going away" without a jar or slackening of pace. The danger and unpleasant sensation of a horse "diving" at his jump is too well known to need comment here. The "diving" horse as well as the "pop-over" horse is a result of poor training.

As a general rule most novices in using a jumping pen make the following mistakes and thereby spoil or injure the horse, rather than make and improve him.

Remember:

a. Don't put the jumps too high. Let him learn to jump low ones properly for some time, before raising them. Always keep them low at first. It's the way of going, not height, you're teaching.

b. Don't bring in a horse "cold"; warm him up before he is expected to start jumping.

c. Don't try to teach him "high school" jumping until he has learned well his ABC's.

d. Don't let the horse go too fast—keep him always controlled at the desired gait.

e. Don't overdo the work at any one time: a dozen or 15 jumps a day is a good average per horse.

f. Don't make the horse fear you and the jumps—he should and will love the work and the opportunity to jump if properly handled.

g. Don't mount the horse in the pen until he has completed the course to your full satisfaction on the *same series* of jumps without any weight on his back.

Remember, it takes several years to "make" a real high class jumping horse. Don't dally with the idea that you are the exception who can do it in a week or so.

It might be added that the attempt is made to get the horse to keep his head and body in parallel curves during the jump without excessive head movement, such as accompanies the

"dive" and "popover." This is achieved with good takeoff on the hocks, when the jump is made in stride. It is not essential that the horse take off always at the same spot for the same jump. How much energy is necessary to clear is determined by the horse himself from experience, and depends upon his speed of approach. In the "dive" the head starts down while the body is still rising. And in the "popover" the head is still rising when the body is starting down. The horse, we find, learns to avoid these most easily if he first negotiates the obstacles without the weight of a rider.

For the benefit of others who may wish to plan such a training pen. I append a bill of materials, and dimensions. We could not get tanbark, but found four to six inches of compost allowed to pack down before sanding made a satisfactory substitute.

AS THE "JOURNAL" GOES TO PRESS, COLONEL DICKINSON SENDS US THIS RECENT PHOTO OF MAJOR TOWNSEND HEARD'S CHESTNUT COLT. "BELO." CLEARING FOUR FEET IN THE 12TH FA JUMPING PEN

BILL OF MATERIALS

660 running feet 2″ × 4″
960 running feet 2″ × 6″
6100 running feet 1″ × 6″
270 running feet 4″ × 4″
30 ea. cedar posts (8″ dia.)--8′
30 ea. cedar posts (6″ dia.)--6′
90 ea. ¾″ × 12″ bolts.
6 sacks cement
1 bbl. (50 gal.) creosote
16 ea. 2″ pulleys
½ keg 8 penny nails
5 lb. 16 penny nails
4 telephone poles 10″ dia. × 10′
80 feet of ⅜″ cable
650 lbs. lead
30 loads compost: 4″ deep
30 loads sand: 40 cu. yds.
4 ea. 4″ hinges.

Approximately 350 man-hours required for construction.

Dimensions of pen:

Overall length—130′.

Overall width—60′.

Height of outside fence—7′.

Height of inside fence—3′.

Width of track (along straightaway)—10′.

Width of track (center of turns)—14′.

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Soviet Field Artillery School

THE Soviet Artillery Academy is located in the Krasnogvordeiski District of Leningrad, near the banks of the Neva. It occupies approximately one square city block in a series of interconnected buildings all dating from the middle of the 19th century or earlier. The buildings include classrooms, laboratories, workshops, an ordnance museum, and living quarters.

The Academy was established shortly after the Revolution, to provide higher training for artillery officers. As a rule, artillery officers, after finishing regimental and divisional schools, are trained in the central artillery schools of the several military districts. Graduates of the district schools, after two or three years service with troops, may be selected as student officers for the Dzerzhinski Academy.

The Dzerzhinski Academy is the only one of its kind in the Soviet Union and graduation from the Academy is indispensable for officers who expect to reach the higher grades in Red Army artillery or in the higher command.

The only schools which a Red Army officer might expect to attend after graduation from the Dzerzhinski Artillery Academy, are the Frunze Academy (General Command Course) and the General Staff Academy, Moscow.

The director of the Academy is Komdiv Dmitri Dmitrievich Trizna, whose Chief of Staff is Kombrig Pavel Pavlovich Molodstov and whose immediate assistant is Military Engineer of the Second Rank Shapiro. The Chief of the Political Department is Division Commissar Genin. Kombrig Shuvalikov is also attached to the Academy. The Chief of the Experimental and Research Laboratory is Colonel Galovin. The Chief of the Ballistics Section is Colonel Blagonravov. Major Kulikov is the Chief of the Instructional Staff. Colonel Nikiforov is the Chief Supply Officer of the Academy.

The student body consists of Majors, Captains, and Lieutenants of artillery, and a few civilians apparently detailed to the Academy from manufacturing arsenals.

It appears that the student body consists of about 600 persons. The faculty includes about 100, of whom approximately half appear to be civilians, notably in the foreign language classes and in the physics department.

Students are selected for the Academy after a series of competitive examinations. The first series of such examinations occurs at the various military district headquarters, to which any artillery officer may submit his application for the Academy. The applicants undertake competitive tests in February. The highest quarter or fifth of the applicants in each military district then are given three months leave in order to prepare themselves

more thoroughly for the central competitive examinations which occur in June. About 20 to 25% of the applicants succeed in passing the central competitive examination for entrance and are admitted to the Academy in August.

In view of the exceedingly rigorous entrance examinations, it is not surprising to find that about 95% of the officers who enter the Academy graduate at the end of the course.

The course of study at the Academy lasts five years. During the first three years there is a common course of study for all students, but a certain amount of specialization is permitted during the final two years.

The academic work of the Academy is apportioned among six departments: Command, Ballistics, Artillery, Infantry Weapons, Ammunition, Powder and Explosives. The Department of Command is occupied principally with questions of artillery tactics and technique, but also includes foreign languages and certain general cultural subjects.

The other departments concentrate on intensive theoretical studies of materiel, research and investigation on new types, and questions of manufacturing methods, especially under conditions of mass production.

The Academy is well equipped with laboratories, particularly physics and chemistry laboratories, which are used at various times by all the departments. The testing equipment is of the best, particularly in the metallurgical laboratory, and includes every type of apparatus for physical tests as well as for chemical analysis. Special stress is laid on strength tests, fatigue-of-metals tests, and Roentgenological tests.

Most of the electrical equipment was of German manufacture, although a few instruments of Austrian. Swiss, and British manufacture were noticed. No American machines or instruments were seen.

The Academy possesses an excellent technical library of 100,000 volumes, especially well provided with current technical literature from all the principal countries of the world.

Great stress is laid on the students' theses, written for their final examinations during the last nine months of the fifth year of the course. These theses include the students' original research work on some phase of artillery or ballistics.

Most of the time of the student officers is spent in the laboratory, but classroom work also is prescribed. Classes range in size from six or eight officers, where special research problems are discussed, up to classes of 60, where general problems of chemistry or physics are discussed.

The school day consists normally of five hours in the class room. The school week is not uniform for all students. During the first year, students spend every working day at the school. During the second, third and fourth years, one day a week is assigned for individual investigation (in addition to the weekly "Free Day" or "Sunday" on which no classes are held). During the fifth year, two days each week in addition to Free Day are allowed the student for individual research work.

The Dzerzhinski Artillery Academy provides satisfactorily for the training of Red Army artillery officers for higher artillery commands and supplements the training for the lower military schools by giving selected artillery officers five years of professional study, concentrated largely on technical artillery subjects. The qualifications of the instructors, the physical plant and the organization of the Academy, seemed well calculated to accomplish the assigned mission.

Gunnery Condensed

BY CAPTAIN LEWIS S. GRIFFING, 83d FA

These condensed forms of the underlying principles for conduct of fire have been prepared for use in instruction, both as a quick way of refreshing one's mind before firing and to enable the officer critiquing the problem to bring out its salient points.

Their use will enable the critiquing officer to base his comments on a check list in the column headed "Remarks."

The forms are self-explanatory, but a careful study will indicate that they are based on the assumption that the user is familiar with Field Artillery Book 161.

AXIAL CONDUCT OF FIRE

METHODS			REMARKS
Precision	Mission—To place center of impact on the adjusting point.		
Fire with 1 gun & Q. Use *r/R*	Adjustment	1. Sense Rn only, but act on Rn and Df.	
		2. Obtain 1-*F* bracket using bounds of 1*F*. 2*F*, 4*F*, 8*F*, as initial data indicate. *a*. 1st Rd, cold piece, not used as limit of final bracket. *b*. Use new *F* after 8*F* bounds with no bracket. *c*. On T hit, fire 5 Rds, same El.	
	Effect	3. After obtaining 1-*F* bracket, fire 6 Rds in groups of 3 at center (trial El). *a*. If 1st 3 in same sense, change ½*F* and fire 2 Rds. Consider 6 fired at mean.	
		4. Adjusted El is trial El + or — $\frac{\text{Dif of overs, shorts}}{12} \times F$	
		5. Compute again after each 6, taking ½, ⅓, etc., change indicated.	
Bracket	Mission—Inclose T in a Rn bracket of appropriate size with Df correct		
Fired with Btry Use Si & Rn scale	Adjustment	1. Open with interior piece, fit sheaf to visible portion of T. *a*. Open with Btry if data are good and necessity warrants. In this case use open sheaf.	
		2. Bring in Btry when 200-yd Rn change is made.	
		3. Seek 200-yd bracket unless T is fixed, of little depth, and clearly visible.	
	Effect	4. When bracket is obtained, start zone fire at Rn having only 1 sensing, except:	
		a. When bracketing or mixed salvo is obtained (1) If final bracket is 200 yds, fire 1 volley at this Rn, then cover zone. (2) If final bracket is 100 yds, fire 2 volleys at this Rn, observe effect and change ½*c* if necessary.	

LATERAL CONDUCT OF FIRE (Small *T*)

(Used when *T* is 300*m* or less)

METHODS			REMARKS*
	Mission—To place center of impact on the adjusting point		
Precision Compute *r/R*	Adjustment	1. Handle Rn as in Ax Prec getting shot on line *r/R* × Obs Dev. Keep shot on line by changing Df by same number of *s* shifts as Rn is changed in *F's*. Sense Dev and Rn.	X
		2. If *s* is obviously in error, change it by dividing amount shot is off line by number of *s* shifts made and apply to original *s*.	
$s = \frac{1/10T}{R}$	Effect	3. Fire for effect at center 1-*F* bracket at Df to put shots on line: sense Df when possible, Rn by rule if not possible to sense on terrain.	X
		4. On obtaining Df sensing, shift ½*s* or 2m, whichever is greater.	X
		5. Split Df bracket and continue fire in groups of 3 until Df is correct.	No —10%
		6. Adjusted El as in axial precision.	X 90%
Bracket Use *s* & *r/R*. Rn handled as in Ax.	Mission—Inclose T in Rn bracket of appropriate size with Df correct Adjustment	1. Start with interior piece with open sheaf. *a*. If offset is less than 200*m* and target is narrow, converge slightly.	
		2. Sense Rn and Dev while using 1 gun.	
Bring shots on line by *r/R* × Obs Dev. Keep shot on line by 1-*s* shift per 100 yds.		3. Bring in Btry when 200-yd bound is made or observation is difficult.	
	Effect Zone fire as in Ax.	4. Start effect at center of final bracket to check Df. *a*. Improve Df on positive sensings.	
		5. Use open sheaf for effect until it can be converged on positive Df sensings.	

*Column headed "Remarks" is completed here to show manner of use.

LATERAL CONDUCT OF FIRE (Large *T*)

(Used when *T* is greater than 300*m*)

	METHODS		REMARKS
Precision	Mission—To place center of impact on the adjusting point.		
	Adjustment Use *s* & *c/d* $d = \frac{1/10T}{r}$	1. Seek a Df bracket using Rn changes to get on line.	
		2. Get on line by *c/d* × Obs Dev.	
		3. Stay on line by changing Rn by number of forks Df has been changed in s's.	
		4. Sense Df and Dev only.	
		5. When Df bracket is obtained, continue to split, firing at El which splits Rn between actual or computed line shots.	
		6. Trial Df is obtained by T shot or going to center of 1-*s* bracket, providing *s* does not exceed 16*m*. El to put shots on line.	
	Effect	7. Sense Rn if possible, otherwise by rule, and Df when possible.	
		8. Improve Df as sensings are obtained until correct.	
		9. Compute adjusted El as in axial.	
Bracket Use *s* & *d*. Df controlling element.	Mission—Enclose T in Rn bracket of appropriate size with Df correct.		
	Adjustment	1. Open with an interior piece with open sheaf.	
		2. Sense Df and Dev when firing with 1 piece.	
		3. Bring bursts to line by changing hundreds of yds given by Dev/*d*.	
		4. Give commands to shift at once after getting a Df sensing and keep shots on line as in precision.	
		5. Bring in Btry when making a 2-*s* shift or sooner.	
		6. Sense Rn when Btry is brought in, and Df of salvo as a whole.	
		7. Fire salvo beginning with farthest flank piece to facilitate Df sensing.	
		8. Bracket Df by shifting multiples of *s* with a corresponding number of 100-yd. Rn changes from a Rn that would have given approximately a line shot.	
	Effect	9. Fire for effect when Df bracket is not greater than width of an open sheaf.	
		10. Start at Rn to keep shots on line.	
		11. Then, if satisfied with the adjustment, cover the zone rapidly.	

NOTE: When possible, forms for a particular problem should show a small square indicating the target area to be covered, and another, completely or partially superimposed upon it, indicating where the fire actually fell.

TIME FIRE AS APPLIED TO ALL BRACKET PROBLEMS

Object—To place mean height of burst about 15 yards, 2-4 mils, above T.

	METHODS	REMARKS
Adjustment	1. Announce site and normal Kr.	
With 1 gun	2. Seek 0 height of burst by bracketing Kr between A and G to 2-, or 3-*m* bracket.	
With salvo	3. Seek 0 height of burst ½ to ⅓ on G.	
	4. If 1st salvo for adjustment is: *a*. Lost, all G or all A, change 10*m*. *b*. 3 one sense, 1 other sense, change 5*m*. *c*. 2 A and 2 G, no change.	
	5. If Kr has been bracketed with 1 gun, change 5*m* if Kr change is indicated.	
Effect	6. For effect, use 2- to 4-*m* height of burst, ¼ to ⅛ on G.	
	7. If last salvo for adjustment is: *a*. 2 G, 2 A, Up 2 or 3 *b*. 3 G, 1 A, Up 5 *c*. 3 A, 1 G, no change	

AIR OBSERVATION METHODS—Ground Observer

		REMARKS
1.	Mark to identify BP Ch Conc (if necessary)—MA BP OB	
2.	Mark direction of fire (normally desirable)—4øø SS (øø) RZ	
3.	Designate T by one of the following methods: *a*. By cone number (when T coincides) and description *b*. By sensing some reference point (BP or Ch Conc) with respect to T and description (BP—Ch Conc (is) LL øø (SS) ZB OB) *c*. By coordinates from gridded map or photo and description	
4.	Request Bn when T by size or importance warrants (BP or Ch Conc (is) LL øø (SS) ZF RB OB)	
5.	When Btry is ready, give the command "FIRE" when in position and ready to observe.	
6.	Sense errors in yards for Df and Rn with respect to T.	
7.	When observation is difficult, sense a single element until close to T.	
8.	Make bold changes and bracket Rn and Df when sensing is difficult.	
9.	Do not fire for effect until satisfied with adjustment.	
10.	Watch fire for effect with view to improvement.	
11.	If fire for effect is desired continued, repeat FE.	
12.	Use authorized procedure and confine communication to code.	

HIGH-BURST ADJUSTMENT

	REMARKS
1. Compute shift from RP and site for OA to expected burst center.	
2. Compute site and shift from RP for OL to expected burst center.	
3. Use method of laying OA and OL to eliminate possibility of error.	
4. Set up and stake out instruments.	
5. Look up fuze Rn for Rn setting corresponding to map Rn.	
6. Throw out erratic shots or those not observed by OA and OL.	
7. Determine the complementary site correction and apply.	
8. Plot location of Ch Pt. Measure Rn and Df shift to it.	
9. Determine the correct *K*.	
10. Record a new and correct Base Deflection.	

***K*-TRANSFER**

	REMARKS
1. Plot gun. BP, determine initial El. Look up change in Rn for 1*m* in El.	
2. Adjust and determine a *K*.	
3. Record instrument direction.	
4. Record new base deflection.	
5. Measure shift to T from map or mosaic.	
6. Apply *K*.	

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Reviews

THE UNITED STATES ARMY IN WAR AND PEACE

By Colonel Oliver L. Spaulding, FA

EDITORIAL NOTE. *The* JOURNAL, *desirous of obtaining a nonmilitary viewpoint of Colonel O. L. Spaulding's "The United States Army in War and Peace," because so many excellent reviews of the work had previously appeared in service journals, asked Mr. John Ferguson, 3d, of the Monumental Printing Company, the* JOURNAL *publishers, to write one. Mr. Ferguson very kindly consented to do so and prepared the following article.*

History is a distillation of experiences. It may be a medicinal warning for future generations, or a drug. One such warning is contained in Colonel Oliver Lyman Spaulding's history, "The United States Army in War and Peace." It is that our mistakes of the past have resulted from our failure to maintain a military policy coordinated with our state policy. Soldiers are employees of the people, ready to enforce the will of the state when needed. A military policy, therefore, should be a practical reflection of the state policy; but this nation invariably makes war first and then calls upon its army to make peace.

Perhaps it was not Colonel Spaulding's intention that this be a theme of his history, but the moral is printed between the lines of every page. Even the exigencies of publishing that forced the author to tell his story in a single volume of 467 pages cannot conceal evidence of the lack of preparation for conflict that marked America's entry into every war, and handicapped her efforts in times of peace.

The history of the United States Army is actually a history of the nation.

That Colonel Spaulding has fashioned so workmanlike a volume is due to his care in fixing his scale of description. He has chosen well his essentials without draining his history of its human drama. He has analyzed the problems, the accomplishments, and the blunders of each campaign, and he paints a careful picture of the role the Army has played in peace. His book will serve as an antidote for those who took too much to heart Liddell Hart's concluding summary of the World War, that "The enemy were already suing for peace before Liggett struck. It was well that the Armistice tarried long enough to allow the [American] offensive of November 1 to take place. For it provided a counterpoise to the bitter memories of the Meuse-Argonne, and a proof that when purged and refined by experience the American Army could produce leadership and staff work worthy of the gallant sacrifice of the fighting troops." Colonel Spaulding's history draws a different picture, different in perspective, middle distance, and foreground.

The earliest American military institutions had a European background. Our military fundamentals, text books, arms, and tactics were borrowed from England, Germany, France, and Spain. Pre-Revolutionary engagements and the Revolution itself taught us to adapt those foreign ideas to serve our own purposes. By the end of that war we were teaching Europe. Cornwallis, returned from America and attending Frederick's last maneuver in 1785 could, because of what he had learned in America, ridicule Frederick's tactics as something "the worst general in England would be hooted for practicing."

Congress, however, learned little. In 1784 it decided that "standing armies in time of peace are inconsistent with the principles of republican government," and the army was disbanded.

Soon Indian troubles on the frontier and the activities of armed insurgents caused Congress to regret its action and a small army was authorized,—so small that when war was declared in 1812 we had only 7000 men for service. Colonel Spaulding's summary of this unfortunate war is well done. Particularly interesting is his defense of Jackson's maintenance of military discipline in New Orleans until the advent of peace.

The thirty years' peace, so-called, that followed was a period of reorganization and growth, of Army explorations, Indian uprisings, Mexican troubles, Canadian border scraps, and, generally, a busy thirty years for a little army.

The author then discusses the Mexican campaigns, that training ground for almost every army commander on both sides in the Civil War. Here Colonel Spaulding stresses the value that later historians should (and some do) place on General Scott's service to his army and his country. Covering the transition period from warfare in Mexico to the problems of peace that followed, the author quotes at length from General Scott's report to the Secretary of War in which he warns of too great a reduction in army personnel.

The chapters covering the Civil War are excellent. Perhaps Moltke used the description at the outset of "Two armed mobs chasing each other about the country, from which nothing can be learned." But before the end, he and every European military man had learned enough to make revisions necessary in their text books.

There followed then a period of minor activities and a complete remodeling of the army. Colonel Spaulding summarizes the growth that culminated in the National Defence Act of 1916. Unfortunately, this reorganization was undertaken too late. It was to cover a period of five years, and war overtook us in less than one year. Instead, then,

of an orderly and speedy mobilization, "we were compelled, as so often before, to adopt makeshift expedients at great cost of time and effort." Theodore Roosevelt once said, "Our people saved a million or two by refusal to prepare and in mere money paid a hundred-fold for each million thus saved."

Colonel Spaulding's chapters on the World War bear out Roosevelt's statement. The description of the war itself is important, but underlying is the fact that we forget our army until the moment actually arrives when we want to use it. Then a miracle is demanded. The Army produced that miracle in the World War.

The author of "The United States Army in War and Peace" speaks with authority. In his thirty-eight years in the Army he has passed through all the grades from Second Lieutenant to Colonel of Artillery. He has seen service in Alaska, China, France, the Philippines, Hawaii and the United States. He served as Brigadier General in the A.E.F. and was for five years Chief of the Historical Section of the Army War College. His history is obviously the work of a skillful writer as well as an experienced soldier.

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TACTIQUE D'ARTILLERIE*

Gen. Frederic Culmann

(A review translated by Sergeant F. W. Merten)

GENERAL Culmann of the French Army, who is originally an artillery officer, under this title has written a work of great importance. The author takes into consideration the vast strides made in the field of technique since the last publication of the official Regulations, more than 15 years ago.

The revision of the "Instructions on the Tactical Employment of Large Units" (*L'instruction sur l'emploi tactique des grandes unités*") dated October 6, 1921, was directly inspired by the experiences gained in the operations of the year 1918. Meanwhile, however, the range, effect, and mobility of the guns have been materially increased. A large part of the artillery has been motorized. Light mechanized divisions have replaced some of the horsed cavalry divisions. Large motorized trains have been organized for the transportation of stategic reserves. Armored cars are now generally employed in both offensive and defensive action. To counteract the ever-increasing armor in battle, antitank guns have been developed which fire armor-piercing ammunition. The antiaircraft artillery has been subjected to numerous improvements in view of the vital role played by aviation.

In the main, this progress is merely the bold development of the innovations that appeared in 1917, and, particularly, in 1918. Important changes in the organization and tactical employment of artillery have manifested themselves since those years. General Culmann describes the evolution of thought during the World War and, on the hand of examples, sets forth the general principles that will always remain valuable as well as the new methods to be applied.

Paying due attention to the historical development of the artillery and indicating the losses inflicted by it during the various periods and in various forms of combat, the author further describes the psychology of the artillery and its practical possibilities.

The artillery is greatly affected by the development made in the field of technique. The dimensions and duration of an operation depend upon the number of guns employed, their ballistic properties, the ammunition reserves,

*For sale at: M. M. Charles-Lavauzelle et Cie., Limoges (Haute-Vienne), France, Price: 42 francs.

and the capacity of the service of supply. General Culmann treats all of these technical problems. He explains matters that are vital to the organization, industrial production, and research of new materiel in war and peace.

General Niessel, who was a member of the Supreme War Council, has this to say about a number of articles devoted to this important book: "This work is to be recommended not only to officers of the artillery. Officers of all arms and particularly those who may be called upon to serve with the General Staff will benefit greatly from an earnest study of this excellent collection of material. This book is a well of information."

General Revol writes as follows: "For a long time to come, probably up to the next world war, this work will serve as a common guide for the commanders of all arms. It is an excellent guide for the higher commands. It is an inexhaustible subject of profound thoughts for the General Staff and those to whom the security of our country is entrusted."

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"FORTUNE" FAVORS—

The magazine "Fortune" has been fighting a war. The July number is entitled "Background of War: V. Who Dares to Fight?" Sixteen illustrations, including page maps in color, illustrate the text. The matter is divided into two parts: One treats of an imaginary Second Battle of Gettysburg, following a landing of 250,000 troops of a European coalition at Baltimore, after the U. S. Fleet has moved to the Pacific to meet an Asiatic threat, and had the Panama Canal destroyed behind it.

The other discusses modern warfare as the current struggle in Spain illuminates it. Pertinent extracts:

"Not only did the attacker armed with modern weapons fail to win an early victory but he failed most spectacularly where his weapons were the newest."

* * * *

"The Italian disaster at Guadalajara was a disaster not only to General Bergonzoli but to all the enthusiasts of tanks and motorized transport and swift dashing columns. . . . It deployed from the main road to fight. And immediately its mobility vanished."

* * * *

"But though the increase in speed is revolutionary it is not necessarily a revolution favorable to the attacker. On the contrary there are those who believe its chief effect is to enable the defender to meet surprise attacks before they can break through."

* * * *

"Tank performance on both sides in the Spanish war has been disappointing."

* * * *

"The machine gun is the king of the battlefield and the machine gun is a defensive weapon."

* * * *

"Even in the World War the supply of the French armies required 75 percent of the maximum capacity of the railroads in their rear, and since the World War many weapons have doubled their rate of fire while all mechanized units have enormously increased their requirements of gasoline. It is a significant fact that both the French and British armies have run out of gasoline in recent maneuvers with no destruction of supplies such as would certainly take place in warfare."

By no means does the article handle the subject in such one-sided fashion as the foregoing extracts might indicate, but they are considered significant as showing how sober is the discussion and how different from the Sunday-supplement treatment of warfare to which one becomes accustomed in general reading.

There is much worth study in this story, and some surprisingly detailed characteristics of foreign weapons, planes, munitions, and the like. The statement is made that the facts were researched among the ordnance experts of various countries, "a clan so close-lipped that no official authority can ever be quoted." And Fortune explains that no name is signed to the article, as all such are the joint product of its editorial staff.

So are ours.

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"GOVERNOR'S ISLAND"

THE JOURNAL has received a handsome 64-page pamphlet, "Governor's Island," commemorating the tercentenary of the purchase of that island from the Indians by Wouter Van Twiller, in 1637, which was a very long time ago. The pamphlet was compiled in the office of the Assistant Chief of Staff, G-2, 2d Corps Area, under the direction of Major R. Ernest Dupuy, FA, and was published privately by the Governor's Island Club, without expense to the government.

Admirable are the maps and other illustrations, 23 of them, which accompany the interesting text. Its editor begins the story of this tiny spot, where all our nation's military great, from Washington down, have trod, with:

"Whoso, after a score of years spent in the service, cannot still feel that little quick pulse-leap following the retreat-gun, when the post personnel freezes to watch the American flag flutter down in accompaniment to a silver-faint 'To the Color,' should skip this foreword. It is meant only for the soldier—that mixture of cynical sentimentality and child-like faith so incomprehensibly anachronistic in this era of sordid individualistic materialism."

A little on the florid side, perhaps—but aren't we all? We don't know how you can get one of these pamphlets, but you can't have ours.

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THE JOURNAL acknowledges with thanks the receipt of a book recently published and titled "West Pointers of 1900." The publication of the book was decided upon at the 35th reunion of the class at West Point in 1935. It is an attractive volume, bound in Cadet grey, and among its interesting biographies are to be found those of two of the Field Artillery's Own, that of Major General Upton Birnie, Chief of Field Artillery, and that of Colonel Augustine McIntyre, Commandant of the Field Artillery School.

ASSIGNMENT OF FA GRADUATES, USMA

B. M. Barksdale and R. H. Van Volkenburgh, Jr., 83d F. A., Fort Benning; E. B. Broadhurst and E. J. Ingmire, 1st F. A., Fort Sill; E. Y. Burton, Jr., and E. N. Kirsten, 3d F. A., Fort Sheridan; F. J. Campbell and E. C. Spaulding, Hawaii, sailing from N. Y. October 20, after temporary duty at 2d C. A.; T. C. Compton, J. M. Cone, L. E. Hoska, Jr., and G. C. McDowell, 18th F. A., Fort Sill; A. O. Connor and C. L. Johnson, 10th F. A., Fort Lewis; W. E. Davis, 19th F. A., Fort Benjamin Harrison, sailing from S. F. for N. Y. September 22, after temporary duty at 9th C. A.; H. G. Davisson and B. W. Porterfield. Fort Sam Houston; R. C. Gildart, 2d, Fort Bragg; M. L. Green and Thomas Truxtun, 4th F. A., Fort Bragg; C. B. Hines and J. R. Johnson, 16th F. A., Fort Myer; J. B. R. Hines and P. G. Lauman, Jr., 83d F. A., Fort Bragg; J. H. Hodges, Jr., 76th F. A., Presidio of Monterey, sailing from N. Y. for S. F. October 20, after temporary duty at 2d C. A.; LeRoy Lutes, Jr., 5th F. A., Madison Bks.; B. P. Major and F. T. Unger, 25th F. A., Madison Bks.; L. F. Mercado, 7th F. A., Fort Ethan Allen; J. B. Mitchell, 19th F. A., Fort Benj. Harrison; J. Y. Parker and J. E. Norvell, 1st Cav. Div., Fort Bliss; and H. L. Stiegler, 10th F. A., Fort Lewis, sailing from N. Y. for S. F. October 20, after temporary duty at 2d C. A.

We Cover the Corps Front

BY CAPTAIN ARCHER F. FREUND, FA

THE Observation Battalion (FA) is outgrowing swaddling clothes. The name is new, but the principles upon which it operates were originated in the World War by English, French, Belgian, German, and American scientist-soldiers. It no longer requires a physicist and a professor of mathematics to operate a sound-ranging set. However, men who are technically trained are required to perform the necessary duties incident to a sound-ranging location. Prepared charts, diagrams, tables, forms, and plotting devices are available for the rapid and reasonably accurate solution of the normal problems.

After the war there was a short period when no progress in sound- and flash-ranging was made in the American Army. Then, in 1922, the First Observation (Flash) Battery was organized. In 1929 it became Battery A 1st Observation Battalion (S&F), and in 1934 grew to the status of 1st Observation Battalion (S&F) (less Battery B). In 1936 the initials S & F for sound and flash were changed to FA (for field artillery). This is the only battalion of its kind in the army and is located at Fort Bragg. North Carolina.

The missions of an observation battalion are the location and determination of caliber of enemy artillery, the collection of information concerning enemy activities, and the adjustment of friendly artillery. The battalion will soon be equipped to carry forward surveys into unmapped territory. Regarding these missions, the location and determination of caliber of hostile artillery and the adjustment of friendly artillery may be performed by the sound-ranging platoons, and the location of enemy artillery, the collection of information, and the adjustment of friendly artillery may be performed by the flash-ranging platoons. Both of the observation batteries and the headquarters battery have survey personnel and as soon as the new tables of basic allowances equip the headquarters batteries it will become their function to carry the survey forward into new territory.

Each corps artillery brigade has, as part of its organization, one observation battalion, and there is a battalion in the organization of army GHQ reserve artillery. This organization would seem to indicate that an observation battalion covers a large front and such is actually the case. One battalion covers a corps front, so, when the question arises as to how long it takes for an observation battalion to get into action, consideration must be given to the space factor and when the answer is that it may take six hours under favorable conditions of weather, terrain, and availability of bench marks, the shooters-from-the-hip with trails just dropped who may think that a long time, should consider the fact that a force the size of a corps or even a division does not become engaged simply by dropping the trails of a part of the light artillery. The batteries of the observation battalion, before they can render suitable reports, must survey in the positions of the six microphones and the six observation posts, and lay wire in large amounts.

A diagram of the wire net here will probably simplify things.

The wire used by the observation battalion is ordinary twisted-pair field wire and is laid on the ground from trucks,

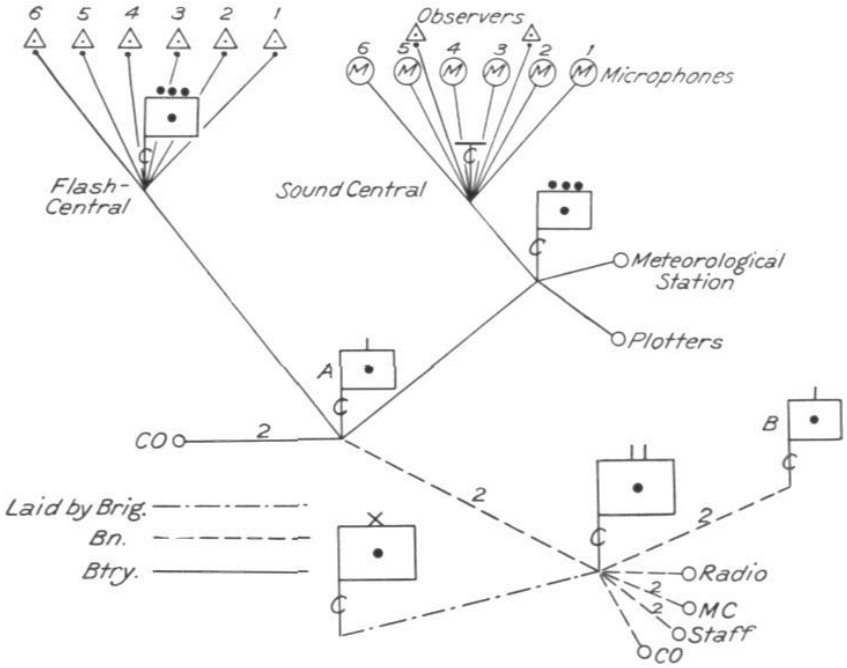

FIGURE 1

just as the wire is laid in any truck-drawn artillery unit. Of course, if the battalion is in a position long enough to improve its net it does so. Great difficulty was experienced in the last war in maintaining long lines of specially constructed wire, and the fatigue and loss of line guards was a serious problem. Undoubtedly the same problems will exist in any future combat, even though the problem of maintaining heavy, cumbersome wire—which is hard to obtain—no longer is a factor.

You will notice in the diagram above that there are two batteries for sound- and flash-ranging and a headquarters battery, which operate as a battalion under the corps artillery commander. The peace strength of a headquarters and headquarters battery is seven officers and sixty-six enlisted men. The battery operates as a normal headquarters battery with, in addition, a battalion section for the transportation of supplies, a group to carry out survey missions, and a specialized electrical repair man to maintain the complex switchboards and equipment which the sound batteries employ in their work.

The observation batteries are a bit more complicated. The peace strength of a battery is four officers and one hundred and twenty-six enlisted men. Referring again to the diagram, you will see that there are two platoons shown, one a sound-ranging platoon with a meteorological group, and one platoon for flash-ranging. In addition to these platoons, a battery has the usual administrative and maintenance groups, and a communication platoon. To dismiss a big job in a few words, the communication personnel are responsible for the installation and maintenance of the large amounts of wire required by both the sound and flash platoons and

for the installation, maintenance, and operation of the rest of the battery wire net.

No discussion of sound-ranging would be very satisfactory without some mention of the theory of sound, so, without attempting to demonstrate and prove any statements by means of mathematical analysis or otherwise, some rather general statements will be offered for acceptance *per se*. Under standard conditions (dry, still air at 50 degrees F.) the velocity of sound is 369.2 yards per second. Corrections for wind and temperature variations must be applied to this figure, but corrections for humidity are at present neglected as being too small to influence a sound location. An increase in temperature increases the velocity of sound. Wind moves the sound waves in the direction the wind is blowing. Sound waves are subject to reflection, refraction, interference, and dissipation. When a wind blows from the microphone toward the sound source it tends to move the sound waves upward, and if the wind exceeds ten miles an hour this lifting effect is so pronounced that the microphone will not record the wave, as a general rule. During a thunderstorm, or on a very hot day, the air is so turbulent that an accurate location of the sound source is impossible. Gusty winds of varying velocity and with different directions at varying altitudes usually result in errors in locating the sound source. Conditions are ideal for sound-ranging when the atmosphere is homogeneous and at rest. These conditions are most nearly fulfilled on a still night, in a light rain, or in a fog. In other words, under conditions when visual observation is difficult or impossible, sound-ranging operates at its best.

With that much theory in mind we can now turn to the broad picture of the set-up of the sound-ranging platoon. Each of the six microphones is wired into a switchboard and oscillograph at the central station. These microphones extend from about six thousand to ten thousand yards parallel to the front, usually in a regular pattern, on the arc of a circle concave to the enemy, or on a straight line. Each microphone position usually is accurately surveyed before the microphone is placed in position. These positions are carefully located on a plotting board. When a gun is fired, the resulting sound wave, spreading out in approximately a spherical form, passes over one microphone, then another, and so on. The passing of the wave is recorded by the microphones on a running tape of sensitized paper called the *film*. The film is then interpreted, and the differences in time between the passing of the sound wave over the different microphones, is used to plot the position of the sound source on the plotting board. Temperature and wind corrections must be applied to these time intervals and also an asymptotic correction made because the asymptotes of hyperbolas are used in plotting.

The hyperbola has peculiar qualities which make it a desirable curve to use in the plotting. The hyperbola is the locus of a point which moves so that the difference of its distances from two fixed points, called the foci, remains a constant. In Figure 2, M_1 and M_2 are the foci and EF the transverse axis which is equal to the constant difference. Two straight lines called asymptotes are associated with the hyperbola. The asymptotes are straight lines which intersect at the midpoint, C. and become tangent to the hyperbola at infinity. Suppose a sound wave passes over M_1, M_2, and M_3 at times T_1, T_2, and T_3, respectively. If the M's are plotted to scale to represent the positions of the microphones and a hyperbola is constructed with M_1 and M_2 as foci and $V(T_2—T_1)$ as EF the curve will pass through the sound

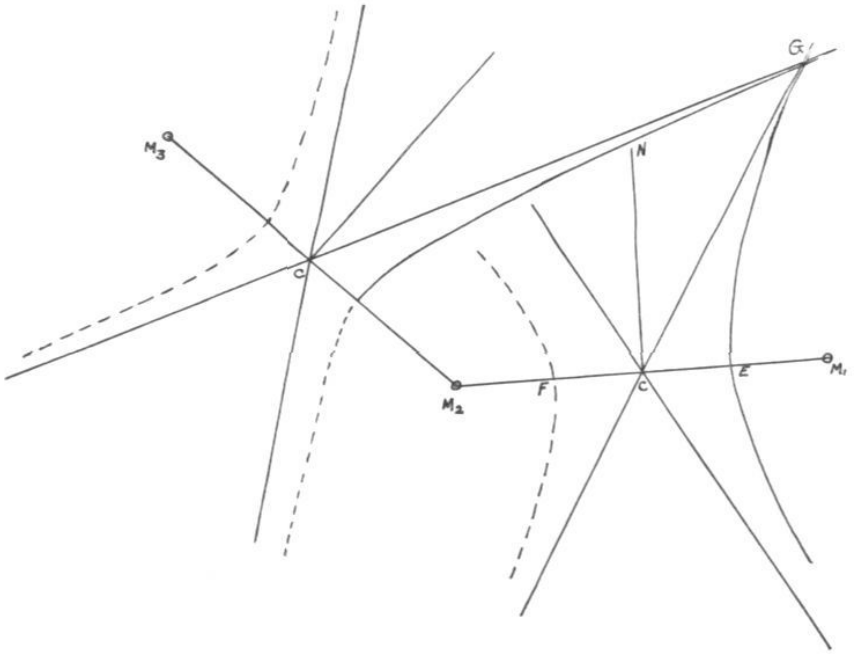

FIGURE 2

source (V is the velocity of sound). A sound source at any point on this curve would fulfill the conditions so that the time interval would be T_2—T_1. In a similar manner, construct a hyperbola having M_2 and M_3 as its foci and V (T_3—T_2) as the transverse axis. This curve will also pass through the sound source, and the intersection of the two curves must be the location of the source of the sound. The same procedure might be followed for M_4, M_5, and M_6. In actual practice three or more hyperbolas seldom intersect at a point but will form a polygon of error. The center of gravity of this polygon is taken as the location of the sound source. As the hyperbola is not an easy curve to construct, the asymptotes are used in practice instead of the hyperbolas, and a correction is made to the plotted position of the asymptote to bring the plot to the hyperbola. The angle NCG which CG makes with the perpendicular bisector CN of M_1—M_2 is connected to t and s by the formula sin NCG = t/s where t is the time interval T_2—T_1, and s, the number of seconds for sound to travel from M_1 to M_2 if the source were in prolongation of M_2—M_1. Hence if the length of the subbase M_1—M_2 is known in sound-seconds and the time interval required for the sound wave to pass from one microphone to another is discovered, the proper asymptote may be constructed from the above equation. Mechanical plotting boards have been constructed for plotting when the microphones are set out on a base of regular prescribed subbase intervals. Wind corrections are obtained by applying the meteorological data to a chart, and temperature corrections are handled in a similar manner. The meteorological data used in sound-ranging differs from that used by artillery, hence it is necessary

for the battery to take its own messages. In the event that one or two microphones are out of order the plot can still be made by applying certain expedients.

The sound-ranging observers, or listeners, are men who are established in forward positions, and they put the sound-ranging set in operation by pressing a button on the outpost set which they have with them. Considerable training is necessary to develop a good observer who can identify sounds in direction and intensity, and tell when to push his button so that no great amount of film is wasted, nor a record made worthless by insufficient data. When an are has been established a given sound source always makes the same pattern on the film. In this way it is possible for highly trained film readers to pick out patterns, and during times when firing is active it will still be possible to make locations. Each caliber of gun and howitzer also has a frequency characteristic, so that the caliber can often be determined. Of course, such things as wind, shell wave, ballistic wave, and other disturbances appearing on the film add to the difficulties, so there is a limit in firing activity beyond which film reading becomes impossible.

All work incident to a location can frequently be completed in three minutes from the time the last disturbance is recorded on the film, or, in other words, after the sound wave has passed over the last microphone. Sound-ranging operates normally for and against medium and heavy artillery, but present microphones can and do pick up frequencies of the light artillery, recording both the firing of the piece and the bursting of the shell. The microphones can pick up disturbances at ranges greater than can be plotted. The greater the range the less accurate will be the plotting. At medium ranges of 8,000 to 12,000 yards a high degree of accuracy can be expected when several observations on the sound source can be had and an average struck.

As for the flash-ranging platoon—if you will forget your troubles and tribulations with bilateral observation and consider six accurately surveyed observation posts with, on each, azimuth (observing) instruments reading to 0.2 mil, and equipped with night-lighting devices, and at the central station a good, mechanical, manually operated plotting board, you can see that when you get six rays plotted and intersecting in a point you've got something there. The only time element that enters here is that of reading the instruments at the observation posts and phoning the readings to the plotting crew at the central station, where the data are plotted almost as rapidly as they come in. The azimuth instruments have a vertical scale reading to 0.2 mil, and as the altitudes, or *z* coordinates, of the observation posts are surveyed, the flash-ranging platoon offers an accurate means of getting a high-burst adjustment. The observers are in a position to give valuable and definite information of enemy installations, movements and positions, all of which is of decided interest to G-2.

Because of the name of the organization there exists a tendency to connect the observation battalion with airplanes, balloons, or airships, but this is a mistaken idea. All observing done by an observation battalion, FA, is done from the ground.

Let us follow an observation battery from a march formation into a position and see what happens. A general location and direction for the arc are given the battery commander, with probably some restrictions regarding flash-ranging observation posts. By map and other reconnaissance he determines a suitable location, direction, size, and type of arc for sound-ranging, and also

suitable observation posts for flash- and sound-ranging. Instructions are given to platoons, and the survey and wire parties start out at once. Wire is laid to the observation posts and to the vicinity of the microphone positions. The central stations and command post are put in operation and the taking of meteorological data begins. As soon as the survey parties have located the microphone positions, the microphones are installed and tested. The sound-ranging observers hear firing from the front, push the buttons on their outpost sets, the oscillograph begins to work, the film is read, corrections are applied, and the plotting is started. Reports are coming in from the flash-ranging observers. The war is on.

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Special Notice

U. S. FIELD ARTILLERY ASSOCIATION PRIZE ESSAY, 1938

A PRIZE of $100 is offered by the United States Field Artillery Association for the best essay submitted by any Field Artillery officer of the Regular Army, National Guard, or Reserve Corps, on any subject of current interest pertaining to the Field Artillery.

The Executive Council of the Association, in announcing the essay prize, offers, in addition, a prize of $50 to that student of the 1937-38 Regular Course of the Field Artillery School whose required thesis shall be adjudged best by the Commandant of the School or by his delegates.

The following rules will govern the *essay* competition:

(1) The award of prize to be made by a committee of three members to be nominated by the President of the Field Artillery Association, voting by ballot and without knowledge of the competitors' names or of each other's vote.

(2) Each competitor shall send his essay to the Secretary-Treasurer of the Association in a sealed envelope marked "Prize Essay Contest." The name of the writer shall not appear on the essay, but instead thereof a motto. Accompanying the essay, a separate sealed envelope will be sent to the Secretary-Treasurer, with the motto on the outside, and the writer's name and motto inside. This envelope will not be opened until after the decision of the Committee.

(3) Essays must be received on or before January 1, 1938. Announcement of award will be made as soon as practicable after that date.

(4) The essay awarded the "United State Field Artillery Association Prize" will be published in the FIELD ARTILLERY JOURNAL as soon as practicable. Essays not awarded the prize may be accepted for publication in the FIELD ARTILLERY JOURNAL at the discretion of the editor and the writers of such articles shall be compensated at the established rate for articles not submitted in competition.

(5) Essays should be limited to 8,000 words, but shorter articles will receive equal consideration.

(6) All essays must be typewritten, double spaced, and submitted in triplicate.

From the Ladies

THE TAKING OF MARFA

BY MARIAN ENDERTON

THE officer's wife receives a letter. Not a new letter but the same old set of questions, this time from Bragg. Last week it was Fort Sam, the week before it was Benning. "What on earth are you doing in Marfa? Didn't you just come from foreign service?" There is a note of anxious interest in these questions, a note of "after all we might go there ourselves sometime," and the officer's wife thinks it is time someone told the field artillery about its newest post.

Ft. D. A. Russell, Marfa, Texas (no, it is not in Wyoming any more), had been an abandoned army post for three years when half a regiment of field artillery descended upon the place in the fall of 1935. Mexican families on relief had been living in the cramped cement-floored quarters which had been built to house army officers. Many houses, including the present quarters of the commanding officer of the post, sheltered burros and chickens as well. Flowers, trees, and lawns had died, and in their stead Texas weeds had flourished even unto the roof tops. Not even a cow had condescended to move into barracks, which were, and are, of wartime construction. An archaeologist could have guessed that the cavalry had formerly occupied the post, by the millions of rusty horseshoe nails strewn along the still-distinguishable roads, but so thorough was the salvaging at the time the horse-pushers left the place that not even a toothbrush-holder had been left behind.

The early settlers of Ft. D. A. Russell (i. e., men who have been stationed there for sixteen months) had no time to be literary and tell the world about the taking of Marfa. The first few weeks were a nightmare. Raw recruits without coats and sometimes without shoes stepped off the train into the teeth of a Texas Norther. A fire hose cleaned debris out of quarters, and a spray applied calsomine to windows as well as walls. Water again flowed through the pipes, water with an excellent taste, and an unsuspected potency that soon made Epsom salts and little pink pills unnecessary.

The dust storms started early that year, and from Thanksgiving on, the tumbleweed and the whirlwind took over the Big Bend Country. The horticultural frenzy that caused the personnel of the post to plow up front yards and scatter powdery black manure far and wide was soon a source of deep regret. A captain had but to turn his back to have the topsoil of his garden deposited in the bathtub of a mere lieutenant.

The playfulness of the Marfa thermometer which for eight months of the year bounces merrily between 16 degrees and the perspiration point brought on such a general epidemic of colds and sore throats that until this day absent-minded members of the garrison sneeze in place of saluting.

So complete and universal were the disasters that overwhelmed Ft. D. A. Russell that the wives began to believe anything. The commanding officer loves to tell about the moose and the captain's wife. The captain's wife had just arrived and did not think she would like Marfa. She called at the C. O.'s quarters and noticed (how could she help it) the gigantic antlers over his fireplace.

"Did you shoot that here?"

"Oh, yes, there are a lot of them in this country."

Said the captain's wife with a timorous glance over her shoulder, "My, I did think I could take some walks around here."

Times have changed now. The bleak little cement houses marching up the hill have bermuda grass instead of weeds in the yards. The menfolk have leisure to go hunting on nearby ranches, and everyone attends the fortnightly dances in the renovated officers' club with its bright Mexican decorations. Excavating has uncovered one of the two cement tennis courts. Old volumes mention a second, but so far no one has taken soundings in the right place. There are expeditions to Ojinaga, just across the Rio Grande some sixty miles away, where Mexican glassware is ridiculously cheap and Mexican beer is unbelievably good. With its new luxuries, with an incomparable summer climate, and with daily sunsets that make the sunsets over Kole Kole Pass look pale, it is not strange that some of the old settlers are queer enough to like the friendly, informal post life of Ft. D. A. Russell.

But it is Marfa and always will be. A soldier leaves the daily bulletin at the door. With the same avidity the officer's wife seized printed folders at West Point and lengthy foolscap sheets at Schofield, she rushes to the door and reads:

"Information has been received that dogs have been chasing young cattle in pastures adjacent to the post. Members of the garrison who own dogs are warned to keep their dogs out of private pastures as they may be shot if found chasing cattle."

AN ARMY WIFE GOES TO SCHOOL

BY LOIS R. DUNN

THERE is an air of importance surrounding the arrival at an Army School, that an ordinary change of station never creates. A feeling of expectancy, and a certain tautness hangs over us all.

The wives view their newly assigned quarters with an attitude of, "Well, this is better than I ever dared hope for in a school."

The incoming student surveys his domain with a contemplative eye. He has come here to study, and he means to be serious about the entire affair. He hopes that his neighbor's radio and piano will not be placed next to that wall which separates the two apartments. And he wanders thoughtfully through his entire quarters trying to decide which room to make his study.

If he is a strong man with a will, he gets the room he selects, which is the one farthest removed from the nursery; cool in the fall and spring; yet not draughty in winter. It must also be a large room with plenty of light.

If he is a bridegroom, or a henpecked individual, he takes the one left over after his wife has considered the situation from her viewpoint. It all depends.

Everyone unpacks thoroughly—prepared to relax for the next ten months. After the usual troubles of curtains not fitting windows; securing competent maids; and getting the Juniors placed in proper grades, we feel truly settled.

We wives have heard that because the student's course is so strenuous, that we should all indulge in outside activities in order to occupy our time and thoughts. The students are busy day and night, and we must always be pleasant, affable and sunny. (I am not certain whether we gain this attitude

from our predecessors; our common sense; our husband's comments; or from a talk made by the commanding general. I am predisposed to believe in the latter cause.) Whatever the reason, we all arrive at the same conclusion: Peace at any cost. In order to diffuse peace, we must also be actively engaged in outside interests.

In seeking these outside interests, the army woman is at her best. If she is literary, the opportunity is golden. The nights while her husband is boning, present a perfect similar period for her to catch up in her reading, or to proceed in any other learned activity.

If she is athletic, she can bowl, swim, ride, tennis, or golf to her heart's content, being always assured of ten good hours of hard sleep—week-ends excepted.

Again, if she likes bridge! School life is the solution to a maiden's prayer for the bridge fiend. She can play all day, every day, and nights, too, and her husband will never object—nor will he even miss her.

Or, if she happens to be a gadabout, an army school is her paradise. Coffee in the post exchange, coco-colas in the club, not to mention afternoon tea parties. And, too, there is such a rhythm and regularity to the school, that she knows just when she can visit with Maude, or run in to chat with Marie, and still be home in time for lunch.

Nor can I omit the various activities in the Woman's Club. Club women are born—not made—and for such, the school posts have made ample provision. For those so minded, they can attend meetings as constantly as they can knit.

And the weekends! A dissertation upon school life would not be properly presented unless weekends were violently thrown in. I use the word violent because most student's weekends are violent. Personally, I understand the weekly need for these outbursts of enthusiasm, because I majored in psychology. But those of you who avoid schools will not have the right understanding with army students.

Then, there is a disease common among the students, known as "schoolitis." One day, I took a walk after lunch, and dropped by to see my friend, Mary, whom I had known for years as an easy-going, level-headed person. To my amazement I found her in tears and she sobbed out her tale of woe to me.

"I just can't understand Bob any more. Before we came here, he was always so pleasant and agreeable, and now nothing that I do suits him. I served lamb chops this noon, and when Bob saw them he yelled out at me, 'What! Lamb chops? You know I can't eat heavy food in the middle of the day, and before a problem, too.'"

Mary wiped her eyes. "I always thought lamb chops so digestible. They give them to young children."

I chuckled.

Mary went on. "And then Bob said, 'Have you any soup?' I smiled brightly, and told him yes indeed, a whole shelf full, and asked what kind he preferred. And then he stood up, and threw his napkin on the floor, and shouted, 'Canned soup? You know perfectly well that I never touch canned soup'—and he stalked into his room, and got his brief case and pencil box. As he was putting on his hat he said, 'Never mind. I'm not very hungry anyhow. I'll just stop by the P. X. and have a hamburger and a cup of coffee.'"

She stopped a moment then remarked, "He has been eating canned soup for years, and likes it—but he has never cared for hamburgers!"

I laughed. "Never mind, Mary, Bob has a case of 'schoolitis.' It will cure itself over the weekend. Have a pot of soup like mother used to make for lunch

tomorrow, and show him the bone. He will recover!"

Occasionally, a student takes life too seriously, or his wife can't meet the situation. Result: St. Elizabeth's, Reno, or Arlington. But it doesn't happen often, and the same thing might have occurred to that individual elsewhere.

Finally, the end of the school year draws near, and the first crop of orders come out. Somehow, Army Women have always regarded orders as being peculiarly their own personal communications. We meet at the P. X., at the club, on the golf links, and always the same conversation takes place. "Have you got your orders yet?"

"No, I haven't, have you?"

We all grab the paper twice a day to see if we are lucky enough to have our husband's name appear under "Army Orders."

Finally, the great day arrives. Your orders were not in the morning's paper, but they should have been.

In the middle of the morning a friend calls up. "Hey, Lois, Sid got his orders. They are published with mine. Fort Lewis. Do you like it?"

"Like it?" I repeat feebly, "it's the only first choice that we have ever had given us in 20 years' service!"

I tell the Kindergarten Child, and she runs out and shouts to her friends, "Hey, Mary and Skeets. I got my orders. We are going to Fort Lewis." (Observe the feminine instinct born in every army girl to regard the orders as her own private message!)

That was the day that my husband's section was enjoying an all-day problem. By the time that he arrived home that evening, beaming with news of his orders. I had disposed of the gold fish; found homes for the two canaries; enquired from the R. R. agent about shipping my dog; given away several awkward pieces of furniture; and had just returned from a shopping tour where I had purchased a light weight wool suit, and a spring topcoat. (I decided after much reflection to buy the raincoat, umbrella, and galoshes in Tacoma, where I could be sure of western styles.)

"Indeed," I purred to his good news, "I have been packing all day, and am just on my way to the attic to go through those chests, and throw out those old books that we had planned to dispose of before moving."

He sank weakly in a chair and murmured something about a highball, a woman's sixth sense, and grapevine telegraphy!

It isn't the moving at the end of the brief school year, nor the ardors of packing again so soon, that we army wives object to. It's the separations. School life tends to bring the students as well as the wives into exceptionally close social relations with each other.

The people who were merely acquaintances on another post become fast friends during the school year, and friends from the past develop into inseparable companions. As the graduation hop draws near, the same question confronts us all. When shall we meet again? Perhaps soon, perhaps never. The hardest part about a school year is the "Auf wiedersehens."

But I ardently like school life with its system and regularity and definite purpose. To all army wives I recommend the Service Schools!

●

Second Lieutenants Robert W. van de Velde, 5th FA, Madison Barracks, N. Y.; Arthur H. Baker, Jr., 7th FA, Ft. Ethan Allen, Vt., and Elmer B. Kennedy, 6th FA, Ft. Hoyle, Md., have received their Regular commissions after a year's training under the Thomason Act. . . Special Bn 123d FA wins June attendance rating in Illinois Guard with 97.2 percent. Of 43 battalions, the standing shows field artillery units took 1st, 2d, 3d, 4th, 6th, 7th, 8th, and 14th places.

Bilateral View of the "Dragons"

FIRING BY LAND, SEA, AND AIR

By Major William J. Egan, FA

UPON reporting to the 11th Field Artillery at Schofield Barracks, T.H., in November, 1935, it was impressed upon me that "I was indeed fortunate in being assigned to an organization which had been designated to perform an exceptionally difficult task."

The regiment had been "handed" two additional assignments, consisting of shooting "Antiaircraft" and "Seacoast" guns.

The 1st Battalion, to which I was assigned, Major Ben M. Sawbridge, FA, commanding, had drawn the antiaircraft mission, and although no materiel had been issued, antiaircraft was the principal topic of conversation. If one appeared the least bit skeptical about the capabilities of a howitzer outfit firing 3-inch antiaircraft guns, he was probably told: "Well, we will shoot them just the same as mountain guns," the colonel having served with the pack artillery for a number of years in his younger days.

A battalion headquarters, a searchlight battery, and four gun batteries were formed in December, 1935. The searchlight battery was divided into three platoons, manned by the three headquarters units of the regiment. Batteries A and B 11th FA, 155-mm. howitzer, furnished the officer and enlisted personnel for each of the four gun batteries. Since it was early discovered that naming the gun batteries would facilitate the handling of records and reports, they became Batteries "Rucker," "Irwin," "Bishop," and "Craig."

(*Continued on next page*)

ARMED TO THE TEETH

By 1st Lt. Edward S. Berry, FA

WEAPONS of many shapes and sizes greet the eye of the officer, NCO, or recruit joining the 11th Field Artillery in Oahu. A platoon of 60-inch searchlights in each of the headquarters batteries completes the unusual picture.

Besides six Schneider howitzers, each firing unit has either a four-gun battery of 155-mm. GPF's, or two four-gun batteries of three-inch antiaircraft guns as substitute primary armament. In addition to these weapons each battery has two British 75-mm. guns, and two 37-mm. rifles for subcaliber range practice. Small arms include the usual quota of machine guns, automatic rifles, and pistols.

"Flexibility" might well be the motto of the Hawaiian Department under its retiring and present commanders. Major Generals Hugh A. Drum and Andrew Moses. In no unit of the command is this spirit of readiness for rapid change to meet any threat more in evidence than in the Eleventh Field Artillery.

The practicability of the plan for dual armament was agreed upon during the fall of 1935 and by January 1, 1936, the regiment had received most of its additional weapons.

The problem of organizing the new elements of the Dr. Jekyll and Mr. Hyde unit fell to Colonel Laurin L. Lawson, who was in command of the Eleventh Field Artillery, his staff, and the two battalion commanders who were then Majors Ben Sawbridge and George P. Winton.

To Batteries A and B went the antiaircraft

(*Continued on page* 294)

During the months of January and February, 1936, intensive training was conducted. Materiel (3″ AA, 1918, trailer mounts) was received. An Officers' School was conducted for a period of ten weeks by Major John T. Lewis, CAC, who was assigned as instructor in the technique and tactics of antiaircraft guns, and the technique of searchlights and fire-control equipment.

Too much cannot be said in praise of Major Lewis. Without him our task would have been a tremendous one. His untiring zeal, splendid command of the subject, and his superior ability as an instructor were of invaluable aid, and an inspiration to all.

The following lesson assignment was published:

Schofield Barracks, T.H.
January 4, 1936.

ANTIAIRCRAFT ARTILLERY SCHOOL

Subjects

	Par. CAFM, Vol. II
1. Elements of Firing Data	5-11
2. Determination of Present Position	
a. Altitude	12, 13
b. Altimeters	80
3. Determination of Future Position	17-27
a. R. A. Corrector	84
4. Methods of Pointing	28, 29
a. Sights	30, 32-35
b. Fuze Setter	38
5. Firing Tables and Trajectory Charts	40-43
6. Classes, Types, and Methods of Fire	44-48
a. Fire for Effect	69-75
7. Preparatory Fire (Trial Fire)	49-68
a. Ballistics	3-4
8. Spotting and Adjustment of Fire	76-79
9. Instruments	
a. Wind and Parallax Computer	89
b. BC Telescope (if issued)	88
c. Spotting Cameras	
10. Combined Drill	
11. Identification of Aircraft	

Conduct of Target Practice

	Par. TR 435-55
1. General	1-13
2. Antiaircraft Artillery	36-41

Antiaircraft Gun, Model 1918

Tech. Reg. 1310-3B

Lesson assignments as announced by the instructor.

The battalion went to the seashore at Fort Weaver, Oahu, T.H., for target practice on March 12, 1936. Organizations of the Coast Artillery Corps conducted their service practice (3″ AA) during the same period from positions adjacent to ours. As we had only four allotted air hours, we were fortunate in being permitted to fire on the towed sleeve during coast artillery plane hours, at such times as the coast artillery batteries were not firing. The uncertainty of obtaining these brief periods for practice, and the long intervals of time between shoots, made the firing of trial-shot problems, prior to practice, inadvisable. Information was obtained and utilized daily from the results of the trial-shot problems fired by neighboring units; trial fire being "preparatory fire having for its purpose the determination of corrections for the battery as a whole to compensate for deviations not corrected for in the normal operations of data computation," and from a field artillery viewpoint corresponding to obtaining a "K" with a high-burst adjustment.

In this practice the flank spotter converted his range sensings to yards of altitude when reporting to the range officer. The flank spotter's range rake was graduated to read directly in terms of altitude error. This expedited the application of corrections to the R. A. Corrector (the data computer used in our practice), spotting being the process of determining the position of a burst with respect to the target or the adjusting point.

The method of fire employed was what might be called, "interrupted." At

the start of each course the flank spotter sensed on an initial group of four bursts; the battery waited for the spot from the flank, and resumed fire after the necessary corrections had been applied.

Lateral and vertical spotting was done by eye, by two spotters at the R. A. Corrector.

Each battery had an allowance of one hundred rounds of 3-inch shrapnel. This was apportioned one half to preliminary practice and one half to record practice. During the record practice all batteries fired four courses, three crossing, and one incoming. The results obtained were expressed by the following report of the battalion commander: "I consider the practice of all four batteries very satisfactory. The primary purpose of the practice was to train key personnel of the gun crews, and all other considerations were subordinated to that of training. The satisfactory scores attained are gratifying, and indicate to a small extent the interest and enthusiasm displayed by the enlisted and commissioned personnel during the practice."

After this initial target practice, ending on April 25, 1936, drill with antiaircraft materiel was limited to two hours per week, with one night practice monthly, in illumination and tracking, for the balance of the 1936 calendar year.

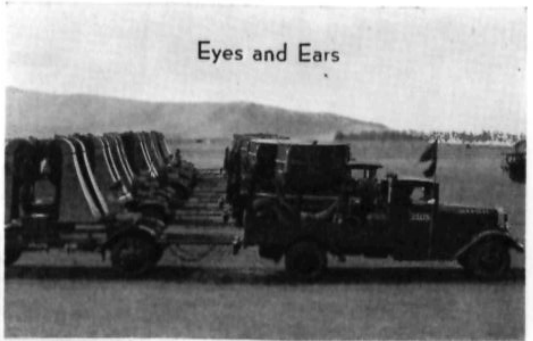
In January, 1937, the battalion again concentrated on antiaircraft training with 1st Lieut. Nathan A. McLamb, 64th CAC. as instructor. Lieut. McLamb's instruction covered practically the same subject matter as that outlined above. The assistance rendered by him in obtaining instruments, instructing new officers, forming a well-trained records section, and acting as liaison officer with the coast artillery, aided us materially in advancing the training of all units of the battalion.

When the battalion returned to Fort Weaver, on March 15, 1937, it was the proud possessor of twenty-nine air hours allotted for the season's target practice. One can briefly sum up this work by quoting from the records: "The results obtained by all batteries were superior to those of the previous year. When it is considered that the 'average slant range,' the 'average horizontal range,' and the 'average altitude,' were all materially increased, the results indicate a high state of training in this organization."

Training Memorandum No. 1, War Department, September 28, 1936, Instructions for Coast Artillery Target Practice—1937, was complied with. The average slant range was 5,466 yards, the average horizontal range was 4,514 yards, and the average altitude 3,082 yards. The two highest scores were made by Battery Rucker, Captain Harold F. Handy, 11th FA, Commanding, scoring 128.05, and by Battery Bishop, Captain Arthur E. Fox, 11th FA, Commanding, scoring 111.2. I believe both of these scores compare favorably with those of regular army antiaircraft organizations.

While the 1st Battalion has been knocking the mysteries out of antiaircraft, the 2nd Battalion of the regiment has done its share as "coasting" artillery, with the two batteries of 155-mm. guns presented them in December, 1935, as an additional weapon to the 155-mm. howitzer. Although the GPF is a field artillery gun, the eight received were formed into two batteries of seacoast artillery. All training and firing connected with them have been conducted using coast artillery instructions and methods. The results obtained have been excellent; the additional assignment has acted to maintain the interest of the officers and enlisted personnel of the units concerned, and their spirit have turned what might have been a difficult task into interesting and pleasant work

ELEVENTH FIELD ARTILLERY "DRAGONS"

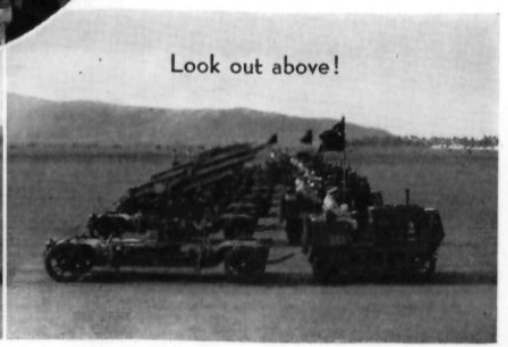


IN REAR OF YOUR PIECES—

FALL

—HOWS, GPF'S, SKY GUNS—

IN!




A Portion of One Section, 11th F.A. Going To War
(The rest of the section is still behind the hill)
S. le R. Irwin

ARMED TO THE TEETH

(*Continued from page* 289)

guns and to Batteries C and D the GPF's. At first the antiaircraft searchlight battery was organized with Hq Btry 1st Bn as the nucleus. Men were drawn from Regtl Hq Btry and Batteries C and D to fill out the three platoons. This organization later gave way to a single platoon of searchlights in each of the three headquarters batteries.

Many problems in securing proper equipment and improvising or manufacturing necessary fire-control, motor, and searchlight equipment, not available for issue, were successfully met.

Extensive repairs on the older searchlights (Cadillac) had to be made before they could be placed satisfactorily in service. A few new and used Duplex searchlight units were obtained to form the control light groups of each platoon. Searchlight mechanics had to be trained before many of the needed repairs and adjustments could be made. Only two enlisted men with previous searchlight experience were available in the regiment.

New storage batteries for all searchlight trucks had to be requisitioned. Permission had to be obtained to drive the obsolete Cadillacs under their own power. For a long period they were towed by other vehicles in all marches and formations. About 175 additional miles of wire had to be obtained for use in the searchlight telephone nets to be set up by the three platoons in covering assigned maneuver areas.

The GPF batteries had to manufacture such devices as range-percentage correction boards, deflection boards, spotting boards, and complete time-interval apparatus, none of which was available for issue. Loading racks, display boards, bore-sight targets, and many other devices were improvised. Coast artillery fire-control and fire-direction methods were adopted because of the tactical mission expected and the fact that the batteries were to be used as integral parts of a coast artillery groupment.

The cooperation of the officers and men of the Hawaiian Separate Coast Artillery Brigade in furnishing instructors in many capacities and arranging helpful demonstrations was invaluable during the early phases of training the new components. The Sixty - fourth Coast Artillery participated in dual night exercises with the Eleventh Field Artillery to help train searchlight personnel, and furnished instructors in antiaircraft theory and gunnery. The Fifty-fifth Coast Artillery furnished instructors in seacoast gunnery.

In March, 1936, the new batteries were ready for their first target practice. The antiaircraft units went to Fort Weaver, and the GPF batteries to the U. S. Military Reservation at Waianae on the southern and western coastlines of Oahu. In all cases the firing was superior to results that might have been expected after so short a preparatory period.

In 1937, all batteries again held target practices at the same locations. This time, results of more than a year's training were in evidence and the antiaircraft units attained results comparable with those of the Coast Artillery. The GPF batteries, firing only half the normal amount of ammunition for practice, again performed very creditably under extremely adverse practice conditions.

Between these two practice seasons, the command of the regiment passed to Colonel Roger S. Parrott. Major William J. Egan succeeded to command

of the antiaircraft battalion and Major John H. Milam was assigned to command the Second Battalion. In addition, all commanders of batteries except two were replaced, owing to officers arriving and departing.

Battery A, representing the Eleventh Field Artillery, distinguished itself and the regiment by winning second place in the 1936 Department Military Competitions in the rapid-emplacement event for three-inch antiaircraft batteries. This award was won against well-trained regular Coast Artillery antiaircraft batteries. Battery A was commanded by Captain Harold F. Handy.

The searchlight battery was commanded during the 1936 and 1937 maneuvers by Captain Harry J. Harper, in charge of training the unit from its inception. The three platoons of the organization performed very creditably in the early location of attacking aircraft under difficult conditions.

The two GPF batteries showed to good advantage in 1936 and 1937 maneuvers as integral parts of one of the coast artillery groupments. Each battery was charged with maintenance of its own ten-ton tractors and made excellent road marches to and from maneuver positions without serious interruption. The Haleiwa Hill on the Kamehameha Highway, slippery and winding roads, and deep sand in the maneuver positions, were some of the obstacles successfully overcome.

The situation in the Eleventh Field Artillery early in 1936 was somewhat the reverse of that experienced by many officers and men of the coast artillery in the formation of the AEF during the World War when they were hurriedly grouped into field artillery units. It is noteworthy that the training period of the Eleventh Field Artillery before attempting target practice compared favorably with the limited training period allowed some units preparing for overseas service in 1917.

A high percentage rating was obtained by the Eleventh Field Artillery in the 1936 Hawaiian Department Military Competitions, although the regiment took part in events designed for Coast Artillery and other dismounted units as well as field artillery. After the regiment's garrison and training inspection in May, 1936, a citation was received from the Department Commander reading in part as follows:

"The Regimental Commander, Colonel Laurin L. Lawson, and the Battalion Commanders, Major Ben M. Sawbridge and Major George P. Winton, and the officers and men of the regiment, are commended for the fine spirit and enthusiasm with which they have undertaken to maintain and master the operation of the several types of materiel assigned to the regiment, and their excellent appearance and demonstration during this inspection."

Again, after the 1937 tactical, garrison, and training inspection of the brigade by General Drum, appreciation of the regiment's fine showing elicited the following comment from him:

"In connection with the inspection, I desire to commend all officers and enlisted men who were cited for signal accomplishments, and, in particular, the following units and the commanders thereof for their exceptional state of my inspection:

11th Field Artillery Brigade, Colonel Laurin L. Lawson, Commanding.

11th Field Artillery

Colonel Roger S. Parrott, Commanding.

The cheerful, efficient and thorough work accomplished by this regiment

in the care of its large amount of equipment is outstanding.

Hq. and Hq. Battery, 1st Bn.—Captain Harry J. Harper, Commanding.

Battery 'A' — Captain Harold F. Handy, Commanding.

Battery 'D'—Captain Royal L. Gervais, Commanding.

The regiment is rated from 'Excellent to Superior.'

H. A. DRUM,
Major General, Commanding."

240-mm. howitzers are the only weapons of field artillery caliber lacking in the arms ensemble of the Eleventh. Even these would not be entirely new to a few members of the regiment as they were a part of the maneuver armament with which the unit went to a peacetime Oahu War in 1935.

The pictures accompanying this article were taken by army photographers during 1936 maneuvers, at the filming of a March of Time newsreel in January, 1937, and during drills and reviews at other times. The cartoon by Lt. Col. S. leR. Irwin is reminiscent of a visit paid by him to the regimental commander during the training period in 1936. It appeared on the regimental Christmas cards and holiday menus.

The regiment's motto is "On Time." Its favorite tradition is told in the inspiring marching song: "The Eleventh Field Artillery Fired the Last Shot in the War." With components in nearly all Hawaiian Department lines of defense, an interesting future is in store for the Eleventh in any engagement involving defense of Oahu against air attack or invasion.

Field Artillery Association Medal

This is the Field Artillery Association Medal, to be awarded the outstanding field artillery trainee in each summer training camp of senior ROTC. The medal was designed by Captain Rex Chandler, FA, and was struck by the N. S. Meyer Co.

Twelve medals have been requisitioned by the senior field artillery officers at the camps concerned, and were to be awarded at the conclusion of the training periods.

The first medal-winner reported was Mr. Thomas Boyle Campbell, University of Oklahoma, who distinguished himself during the 1937 ROTC camp at Fort Sill, Oklahoma.

The 2d Bn 144th FA (Calif. N. G.), Maj. R. W. Coane commanding, of Santa Barbara, plans to install in the new armory to house its 155-mm. guns, a statue of the patroness of artillery and of the city.

The Umpteenth Field and Their Outlaw Grays

By B. M. BARROWS

We sat by the fire while the thunder rolled,
And heard this tale from a soldier old
And battered and worn, and a bit uncouth
(*I'm sorry that I can't vouch for its truth*):

The Umpteenth Field had a team of grays
That had never been worked in all their days,
And the sick report (if it isn't lost)
Is filled with the names of men they've tossed.

Now Captain Bob of the Umpteenth Field
Swore an oath that the outlaw grays must yield;
Swore a mighty oath by his Maker's name,
The team didn't live that he couldn't tame!

Two men of iron made the welkin ring
As they volunteered for the wheel and swing,
And the word was passed (with a wifely sob)
The man on the lead would be Captain Bob!

The team was hitched to a caisson strong.
And the regiment said, "Well, it won't be long. . ."
And the man at the brake had a smile on his face
That seemed to say, "We're off to the race!"

"Turn 'em loose!" cried Captain Bob with a yell—
Straight up they leaped like a mob from hell,
And the hoofs and wheels flashed sparks of fire
As team and carriage went higher and higher!

Straight up they leaped—and into the blue
Those grays took drivers and carriage, too!
The Adjutant looked at the Colonel and grinned.
And the Colonel sighed and said, "Gone with the wind."

And strange as it seems—believe it or not—
They've never been seen since they left that spot!
Neither hide nor hair, neither saddle or trace
Has ever been found since they left that place!

In the Umpteenth Field when the lightning gleams
And dark clouds vanquish the pale moonbeams.
They look at each other and fearfully say,
"Captain Bob and the grays are headed this way!"

And the clang and crash of the thunder's roll
Is the neckyoke banging the limber pole,
Captain Bob and the grays on a roaring climb
Up and down the skies till the end of Time!

Packing in Panama

IN October, 1936, the need was foreseen, by Major Ray H. Lewis, 1st Bn 2d FA, of providing for replacements for the rapidly diminishing supply of packmasters in the Panama Department. The problem of finding suitable qualified packmasters as replacements for those returning to the United States was becoming a grave concern. The problem facing the 2d FA was, perhaps, more serious than that to be found in units in the United States due to the two-year tour of duty—two months of which is spent in recruit training—and to the fact that only on rare occasions was a recruit found who possessed any knowledge whatever of the art of packing; further, the constant turnover, which prevented men in the sections from ever gaining more than a rudimentary knowledge of packing, operated to throw an additional burden on the packmaster.

For these reasons it was decided to inaugurate a school for packmasters. The school was scheduled for six months duration and the student personnel was very carefully selected from a large number of volunteers. Staff Sergeant Louis Webb, one of the ablest and most experienced packmasters in the field artillery, was on hand to take charge of the school.

The scope of the instruction given and the time devoted to each subject was as follows:

- History, development, and organization of pack transportation—Theoretical 5½ hours
- Maintenance, repair, improvement, and manufacture of pack saddles and equipment—Theoretical 15 hours
- Methods of packing with ropes, special frames, and hangars of various types—Theoretical 20 hours
- Shoeing mules and horses—Theoretical 18 hours; Practical 24 hours
- Saddlery — Theoretical 18 hours; Practical 12 hours
- Animal management — Theoretical 1½ hours
- Treatment of sick and injured animals—Theoretical 4 hours
- Duty as packmaster, cargador, or packer of a provisional combat train in garrison—3 months
- Duty as packmaster, cargador or packer of a provisional combat train in the field—10 days
- Duty as acting packmaster or assistant packmaster of a pack artillery battery in the field—25 days
- Duty as packmaster, cargador, or packer of a provisional pack train marching 150 miles over mountain trails and 125 miles over highway—15 days

Out of some forty applications received from among the enlisted men of the battalion, the six considered to be best suited for the course were selected. Of these six, five graduated while the remaining one was discharged prior to the completion of the course to accept an offer of employment in civil life.

Incident to the course of instruction, the students were used to man a provisional pack train of approximately thirty animals to provide transportation for an extended reconnaissance into the jungle and mountains west of the Panama Canal. This expedition, designed by Brigadier General Laurence Halsted of Fort Amador, was to traverse the country between the Continental Divide and the National Highway from Pedro Miguel to the vicinity of Penonome. The route taken was from Pedro Miguel, thence north of Arraijan and Chorrera to Caimito and Campana, thence across the mountains to Sora, El Valle, Penonome,

La Pintada, Nata, and return by way of the National Highway. The trip out required twelve days while four days were sufficient for the return via the highway. Portions of the route followed had previously been surveyed by army engineers, but, so far as is known, that part from Campana to El Valle to Penonome had never been undertaken by American troops. Trails were encountered that had never been traversed by animals as large as a mule, and gorges were passed where a man with outstretched arms could touch both sides, the walls being thirty feet high. A few accidents occurred in which mules lost their footing and rolled with their packs down the mountain side. However, in all cases they were recovered and every animal completed the journey in good condition. The fact that the mules came through the trip unharmed, although carrying an average of 300 pounds each, was due largely to the care and supervision given by the packmasters and cargadors, several of whom were students at the school, and the value of the instruction they had received was amply proven.

The success of the school, as previously demonstrated during the reconnaissance march, has resulted in the recent issue of orders by the department commander to provide for a similar school, under the direction of Department Headquarters, to be attended by approximately twenty officers and men selected from among all troops of the department. The information and experience gained during the reconnaissance march are being used by the department commander as a basis for field training during 1938, when it is planned to conduct more extensive operations away from highways, and more extensive use of pack transportation than has been the practice in the past.

It is hoped that much benefit may accrue from the continuation of this school, for there still remain many places where only a man on foot or a pack animal can go, and in operations in such terrain the well-qualified packmaster is indispensable.

The following students completed the course in the 2d FA school and have been declared qualified to perform the duties of packmaster in a pack train, a pack artillery combat train, or a battery of field artillery (pack):

Staff Sergeant Casey J. Hall, Sergeant Thomas Brennan, Sergeant Wallace R. Dull, Corporal William Sikorski, Corporal Fordythe C. Wallis.

●

William B. Rosevear, Jr., new President, and one of original organizers, of the Reserve Officers Association; graduate USMA, 1913; ex-First FA, Schofield Barracks; War Course. School of Fire, 1917; Major, 88th Div., AEF, has been a Colonel, FA-Res, since 1922. . . . Captain W. A. Samouce (on Bumper Lass, and Jouett), Captain A. E. Kastner (on Agate), and 1st Lt. A. Watson, II (on Jinmac) defeated seven other teams of four in the handicap jumping at the FAS Horse Show June 4-5, winning the Colonel G. M. Peek Cup. Collectively they represented the Department of Animal Transport, and individually and respectively they were the Director, the Secretary, and Assistant Secretary of the Show.

Field Artillery Graduates of General and Special Service Schools and Their New Assignments

Regular Course, Field Artillery School

Captain H. W. Brimmer, 18th FA, Ft. Sill.
Captain J. D. Salmon, 2d FA, Canal Zone.
1st Lieut. D. E. Beach, Advanced Course in Horsemanship, F.A.S.
1st Lieut. J. E. Beery, 2d FA, Canal Zone.
1st Lieut. J. R. Beishline, Advanced Course in Motors, FAS.
1st Lieut. H. F. Bigelow, 83d FA, Ft. Bragg, N. C.
1st Lieut. R. D. Black, Jr., USMA, West Point, N. Y.
1st Lieut. R. C. Bower, 1st FA, Ft. Sill, Okla.
1st Lieut. R. Q. Brown, Advanced Course in Motors, FAS.
1st Lieut. R. L. Carmichael, Jr., Advanced Course in Motors, FAS.
1st Lieut. R. S. Carter, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. G. K. Cusack, USMA, West Point, N. Y.
1st Lieut. G. E. Dietz, 19th FA, Ft. Benjamin Harrison, Ind.
1st Lieut. W. A. Downing, Jr., USMA, West Point, N. Y.
1st Lieut. M. L. Fisher, USMA, West Point, N. Y.
1st Lieut. W. F. Gallup, 1st FA, Ft. Sill, Okla.
1st Lieut. F. S. Gardner, 17th FA, Ft. Bragg, N. C.
1st Lieut. J. E. Godwin, 2d FA Brig., Ft. Sam Houston, Texas.
1st Lieut. W. R. Goodrich, 6th FA, Ft. Hoyle, Md.
1st Lieut. W. P. Goodwin, Advanced Course in Motors, FAS.
1st Lieut. J. F. Greco, 13th FA Brig., with station at Ft. Riley, Kansas.
1st Lieut. J. Hagood, Jr., 24th FA, Ft. Stotsenburg, P. I.
1st Lieut. F. G. Hall, 1st FA, Ft. Sill, Okla.
1st Lieut. W. A. Harris, Advanced Course in Horsemanship, FAS.
1st Lieut. E. S. Hartshorne, Jr., 1st FA Brig., Ft. Hoyle, Md.
1st Lieut. A. M. Haynes, 68th FA, Ft. Knox, Ky.
1st Lieut. L. T. Heath, Advanced Course in Motors, FAS.
1st Lieut. A. R. Hercz, 1st Observation Battalion, Ft. Bragg, N. C.
1st Lieut. R. A. Hewitt, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. L. V. Hightower, 77th FA, Ft. Sill, Okla.
1st Lieut. A. H. Hogan, 10th FA, Ft. Lewis, Washington.
1st Lieut. J. T. Honeycutt, ADC General Herron, Chicago, Ill.
1st Lieut. C. E. N. Howard, Jr., 83d FA, Ft. Bragg, N. C.
1st Lieut. W. H. Isbell, Jr., 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. I. W. Jackson, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. M. M. Magee, 4th FA Brig., Ft. Sill, Okla.
1st Lieut. B. C. Patrick, 16th FA, Ft. Myer, Va.
1st Lieut. N. E. Poinier, 24th FA, Ft. Stotsenburg, P. I.
1st Lieut. H. C. Porter, Advanced Course in Motors, FAS.
1st Lieut. J. B. Rankin, 6th FA Brig., Ft. Sheridan, Ill.
1st Lieut. J. W. M. Reed, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. S. Sawicki, USMA, West Point, N. Y.
1st Lieut. C. A. Schrader, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. G. W. Seaward, 77th FA, Ft. Sill, Okla.
1st Lieut. C. C. Smith, Jr., 3d FA Brig., Ft. Lewis, Washington.
1st Lieut. P. W. Steinbeck, Jr., 1st FA, Ft. Sill, Okla.
1st Lieut. F. H. Tapping, 1st FA, Ft. Sill, Okla.
1st Lieut. W. Taylor, Jr., 83d FA, Ft. Benning, Ga.
1st Lieut. W. R. Thomas, 2d FA Brig., Ft. Sam Houston, Texas.
1st Lieut. E. L. Thompson, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. O. C. Troxel, Jr., 18th FA, Ft. Sill, Okla.
1st Lieut. E. A. Walker, 18th FA, Ft. Sill, Okla.
1st Lieut. C. P. Westpheling, Advanced Course in Motors, FAS.
1st Lieut. P. R. Weyrauch, 4th FA Brig., Ft. Sill, Okla.
1st Lieut. H. K. Whalen, 18th FA, Ft. Sill, Okla.
1st Lieut. J. J. Winn, 16th FA, Ft. Myer, Va.
1st Lieut. C. K. McClelland, Jr., Detailed to Ordnance Department.
1st Lieut. D. W. Traub, 10th FA, Ft. Lewis, Washington.
Captain A. D. Garcia (PS), Command and General Staff School, 1937-38 Course.

Advanced Course in Horsemanship, FAS

1st Lieut. V. B. Barnes, 18th FA, Ft. Sill, Okla.

1st Lieut. J. L. Beynon, 3d FA, Ft. Sheridan, Ill.
1st Lieut. C. W. McConnell, 18th FA, Ft. Sill, Okla.

Advanced Course in Motors, FAS

Captain V. H. Connor, 77th FA, Ft. Sill, Okla.
1st Lieut. L. C. Davis, 7th FA, Ft. Ethan Allen, Vt.
1st Lieut. E. H. Eddy, 11th FA Brig., Schofield Barracks, T. H.
1st Lieut. J. C. Hayden, 18th FA, Ft. Sill, Okla.
1st Lieut. W. H. Hoover, 24th FA, Ft. Stotsenburg, P. I.
1st Lieut. R. S. Pratt, Jr., ADC General Marshall.
1st Lieut. R. W. Timothy, 1st FA, Ft. Sill, Okla.
1st Lieut. D. F. Walker, 77th FA, Ft. Sill, Okla.

Advanced Course in Communication, FAS

1st Lieut. F. A. Lightfoot, 2d FA Brig., Ft. Sam Houston, Texas.
1st Lieut. F. Q. Goodell, 18th FA, Ft. Sill, Okla.
1st Lieut. D. M. Perkins, 82d FA, Ft. Bliss, Texas.
1st Lieut. J. K. Wilson, Jr., 7th FA, Ft. Ethan Allen, Vt.
1st Lieut. M. O. Perry, 24th FA, Ft. Stotsenburg, P. I.
Captain W. D. Williams, 18th FA, Ft. Sill, Okla.
Captain W. A. Wedemeyer, 4th FA, Ft. Bragg, N. C.
1st Lieut. F. G. Stritzinger, 36th FA, Ft. Bragg, N. C.

University of Pennsylvania

1st Lieut. J. G. Harding, 1st Observation Battalion, Ft. Bragg, N. C.

Air Corps Tactical School

Major M. Ross, 6th FA, Ft. Hoyle, Md.

Army Industrial College

Lieut. Colonel J. E. Lewis, AWC.
Lieut. Colonel J. N. Hauser, 2d FA Brig., Ft. Sam Houston, Texas.

Naval War College

Lieut. Colonel E. P. King, Jr., Instr. AWC.

Army War College

Lieut. Colonel G. H. Franke, 2d FA, Canal Zone.
Lieut. Colonel V. Meyer, War Department General Staff.
Lieut. Colonel E. P. Parker, Jr., NG duty, 3d Corps Area.
Lieut. Colonel S. L. Irwin, FA Board, Ft. Bragg, N. C.
Lieut. Colonel A. W. Waldron, 19th FA, Ft. Benjamin Harrison, Ind.
Major E. H. Brooks, Instr. C&GSS.
Major N. A. Campbell, Instr. C&GSS.
Major W. H. Cureton, 4th FA, Ft. Bragg, N. C.
Major E. C. Ewert, War Department General Staff.
Major A. M. Gurney, Instr. C&GSS.
Major R. W. Hasbrouck, War Department General Staff.
Major P. V. Kane, 24th FA, Ft. Stotsenburg, P. I.
Major W. H. Maris, Instr. C&GSS.
Major B. M. Sawbridge, War Department General Staff.

Command and General Staff School

Major H. C. Bowman, 4th FA, Ft. Bragg, N. C.
Major J. F. Brittingham, 36th FA, Ft. Bragg, N. C.
Major W. H. Colbern, ROTC duty Univ. of Ill.
Major S. F. Dunn, 9th FA, Ft. Lewis, Washington.
Major L. M. Haynes, NG duty, 9th Corps Area.
Major T. E. T. Haley, NG duty, 5th Corps Area.
Major M. W. Pettigrew, GS Troops, Hawaii.
Major R. deP. Terrell, NG duty, 7th Corps Area.
Captain J. D. Balmer, ROTC duty Univ. of Florida.
Captain C. J. Barrett, Jr., USMA, West Point, N. Y.
Captain E. A. Bixby, ROTC duty Princeton Univ.
Captain W. D. Brown, 1st FA, Ft. Sill, Okla.
Captain M. Buckley, Jr., FA Board, Ft. Bragg, N. C.
Captain S. E. Bullock, ROTC duty Colorado A&M.
Captain G. R. Carpenter, ROTC duty Univ. of Florida.
Captain Rex E. Chandler, 1st FA, Ft. Sill, Okla.
Captain M. W. Daniel, 17th FA, Ft. Bragg, N. C.
Captain J. P. Eckert, S&F FA School, Ft. Sill, Okla.
Captain L. B. Ely, NG duty 3d Corps Area.
Captain B. Evans, Air Corps Tactical School.
Captain A. M. Gruenther, USMA, West Point, N. Y.
Captain W. H. Hill, ROTC duty Yale Univ.
Captain J. H. Hinds, 18th FA, Ft. Sill, Okla.
Captain G. V. Keyser, 24th FA, Ft. Stotsenburg, P. I.
Captain W. L. Kluss, 2d FA Brig., Ft. Sam Houston, Texas.
Captain M. K. Kurtz, 68th FA, Ft. Knox, Ky.
Captain T. E. Lewis, 2d FA Brig., Ft. Sam Houston, Texas.
Captain A. C. McAuliffe, 1st FA, Ft. Sill, Okla.
Captain S. Y. McGiffert, NG duty 8th Corps Area.
Captain E. McGinley, 83d FA, Ft. Benning, Ga.
Captain W. B. Palmer, ADC to General Bowley.
Captain R. C. Partridge, 1st FA, Ft. Sill, Okla.
Captain E. S. Molitor, ROTC duty Princeton Univ.
Captain G. S. Smith, NG duty 4th Corps Area.
Captain LeR. J. Stewart, 18th FA, Ft. Sill, Okla.
Captain R. M. Wicks, ROTC duty Yale Univ.
Captain N. Catalan (PS).
Captain A. Martelino (PS).
Captain V. Z. Gomez (PS).

An Additional Training Medium

BY LT. COL. J. E. LEWIS, FA
and
1ST LT. CHAMPLIN F. BUCK, FA

VIEWING in retrospect our training efforts during the World War it must be admitted that we suffered from a shortage of trained instructors, demonstration troops, and materiel. Consideration of means or mediums to reduce the ill effects of this condition led to an effort to employ the instructional movie. Only a limited number of new films have been issued since and the use of existing films has decreased to a considerable degree owing to failure to revise them sufficiently often. Obsolete instruction is almost as bad as none. The use of films permits the presentation of many types of instruction in a pleasant, convenient, economical, rapid, and readily absorbed form. They are a more efficient medium than the spoken or written word for the practical types of instruction, especially to groups of any component that lacks the time, space, or troops and materiel for actual performance on the ground: that is, when otherwise the instruction would be largely vicarious, such as often obtains in the civilian components in peace and probably in all components on mobilization. They would be an excellent medium for indoctrination and propaganda.

A few words as to the use of instructional movies in case of mobilization—first, to a large extent, the partially trained instructor doing his best, but contributing to a lack of uniformity, can be replaced by the previously prepared movie presenting the most modern method by the best-trained personnel; and second, on the morale side we can exert a huge influence over both civilian and soldier by dramatizing the efforts of both the army and industry.

With the advent of truck-drawn field artillery it became imperative to find a means to assist in the rapid dissemination of the resultant new instruction, especially in the technique of operating and marching this rapidly spreading type of transport.

The Materiel Department of the Field Artillery School first endeavored to utilize the standard 35-mm. film. True, good results could be attained, but the process was slow, laborious, and costly: skilled camera operators were scarce in the service, and fire regulations and the almost universal state requirement of licensed projector operators proved serious obstacles to their use by the civilian components.

Just at a discouraging period Lieutenant Champlin F. Buck, Field Artillery, then a student in the Regular Course, submitted a proposal to try the 8-mm. amateur type movie equipment. An experiment was made by recording a few of the current instructional activities such as demonstrations of difficult motorized draft and field expedients. The results were tried out on the then current National Guard and Reserve class and as a most favorable reaction was received it was arranged to have Lieutenant Buck, while on leave the summer of 1935, film a few types of materiel available at Fort Bragg and Fort Knox (but not at the School) and to record the emplacement and firing of the 240-mm. Howitzer and the 155-mm. Gun (GPF) by units at Fort Bragg regularly armed with these weapons. These films were tried on all classes at the school in the school year 1935-36 with favorable results. Lieutenant Buck's availability was at an end for some

time in September, 1935, as he became a student in the Advanced Motors Course, but in February, 1936, he again became available and for about three months was detailed for the technical work in connection with the production of a limited program of instructional films. The authors of this article proceeded to write the scenarios and tentative titles, make the necessary reconnaissances, plan the action and the shots, layout the work, acquaint the actors (School Troops) with the desired action, and then film, following the script. The enthusiastic response of the troops involved was such a pleasure that the effort was worthwhile regardless of the results obtained.

In about three months' time the list of subjects was finished, and the resultant films turned over to the Film Rent Service of the Book Department. The Field Artillery School. As prints are more expensive than the originals only a very limited number are being obtained at present. The following were completed:

Tactical Mobility of Light Truck-Drawn Field Artillery

Part I—A March to Position in a Moving Situation. Time: 27 minutes.

Part II—Use of Reconnaissance and Pioneer Detail During a Displacement. Time: 25 minutes.

Field Expedients, Truck-Drawn Field Artillery. Time 25 minutes.

The 240-mm. Howitzer, Emplacement and Firing. Time: 16 minutes.

The 155-mm. Gun. Emplacement and Firing. Time: 10 minutes.

The 75-mm. Field Howitzer, M-3A-1. Time: 5 minutes.

The 75-mm. Gun Carriage M2 with the Gun M1897 A-1. Time: 13 minutes.

This project at the Field Artillery School was started with the idea of increasing the field of instruction for all components of the arm.

From the artillery's standpoint, 8-mm. motion pictures have distinct advantages. The pictures cost about $.40 per minute of developed film. A complete production laboratory may be had for less than $250. In the laboratory, 8-mm. film can be handled with great ease. From the footage standpoint alone, twelve and a half feet of 8-mm. film will show on the screen the same length of time as ninety feet of 35-mm. film or as twenty-five feet of 16-mm. film. Titles for the 8-mm. may be made on a typewriter. Animated sketches and maps are very easy to make. Detail shown on the screen depends entirely upon how the pictures are taken. Great detail may be shown, but naturally, when great detail is desired, it is impossible with this small film to show much background or general set-up in that particular "shot." In taking the pictures at Fort Sill this last spring it was found very satisfactory to take these well trained troops "on location" and "shoot" without any preliminary rehearsals. This procedure might be considered rather radical, but it worked. In the instances referred to, a script was written and approved, a reconnaissance was made on a map, and also on the ground. The commander of the troops was taken on the reconnaissances. Then the picture was "shot." Under these circumstances an artillery officer photographer is better qualified to know what to take than would be a professional photographer who does not know anything about field artillery.

A variation of this method is to mail a few rolls of film together with a description of the project, to any of the other posts in the army where the terrain or materiel is more suited to the project and have an "amateur" there expose the film and then send it back to the base laboratory for editing. This method has been tried and proved very satisfactory. Specifically, film was sent from Fort Sill, Oklahoma, to Fort Bragg, North Carolina, with the request for pictures of materiel not at Fort Sill. When two weeks had passed

the developed film was back at Sill ready to be edited. Another ten days and the film was available for instructional use and the cost to the Field Artillery School was less than ten dollars.

With practically nominal expense involved in making these "amateur" professional films, subjects can be covered and sent out to the service for instructional purposes even when it is recognized that these films will have lost their value after so little as six months of use. Specifically, the value of giving "previews" of materiel and new procedures are in mind.

With projectors slightly modified by the use of large bulbs these films may be shown on a standard size screen to groups as large as 250, and if five individuals want to study the pictures, it is still worth the small amount of trouble to show them on a white cardboard or on the wall of any room that may be partially darkened.

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Regimental Insignia for Field Artillery Museum

The Curator of the Field Artillery Museum, Fort Sill, wishes THE JOURNAL to remind organizations that the school authorities are still desirous of obtaining complete representation of regimental insignia for the museum. The following organizations are represented to date:

I.—*Regular Army Regiments*.

1st F.A.—Fort Sill, Oklahoma.
2nd F.A.—Fort Clayton, Panama C.Z.
4th F.A.—Fort Bragg, North Carolina.
5th F.A.—
6th F.A.—Fort Hoyle, Maryland.
7th F.A.—Fort Ethan Allen, Vermont.
9th F.A.—Fort Lewis, Washington.
10th F.A.—Fort Lewis, Washington.
12th F.A.—Fort Sam Houston, Texas.
14th F.A.—Fort Snelling, Minnesota.
15th F.A.—Fort Sam Houston, Texas.
17th F.A.—Fort Bragg, North Carolina.
68th F.A.—Fort Knox, Kentucky.
77th F.A.—Fort Sill, Oklahoma.
80th F.A.—Fort Des Moines, Iowa.
83rd F.A.—Fort Benning, Georgia.
84th F.A.—Fort Riley, Kansas.
3rd Am. Tn.

II.—*National Guard and Reserve Regiments*.

103rd F.A.—Rhode Island.
104th F.A.—New York.
105th F.A.—New York.
107th F.A.—Pennsylvania.
108th F.A.—Pennsylvania.
113th F.A.—North Carolina.
118th F.A.—Georgia.
119th F.A.—Michigan.
121st F.A.—Wisconsin.
122nd F.A.—Illinois.
132nd F.A.—Texas.
135th F.A.—Ohio.
152nd F.A.—Maine.
156th F.A.—New York.
185th F.A.—Iowa.
222nd F.A.—Utah.
258th F.A.—New York.
355th F.A.—Iowa.

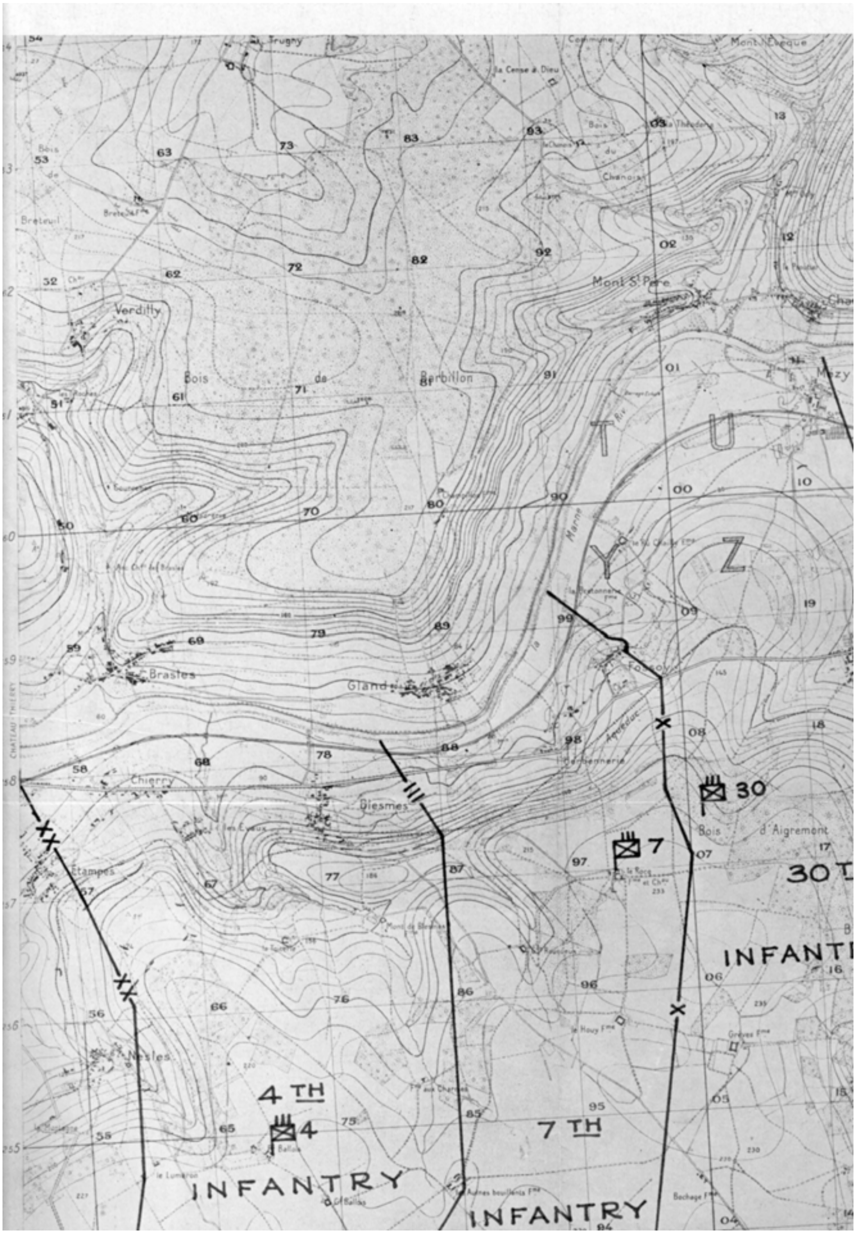
III.—*Field Artillery Brigades*.

52nd F.A.B.—New York.
57th F.A.B.—Wisconsin.
69th F.A.B.—New Jersey.

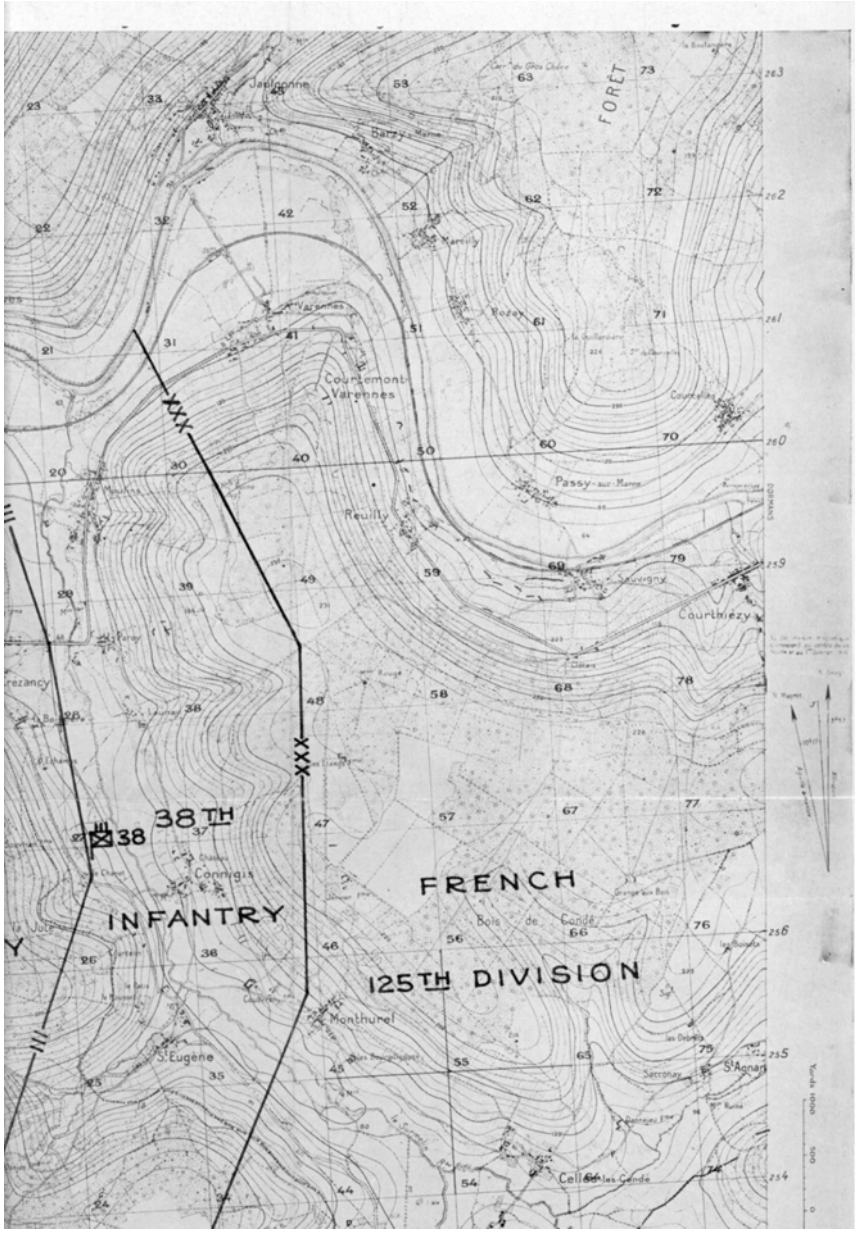
IV.—*Divisions Having F.A. Units*.

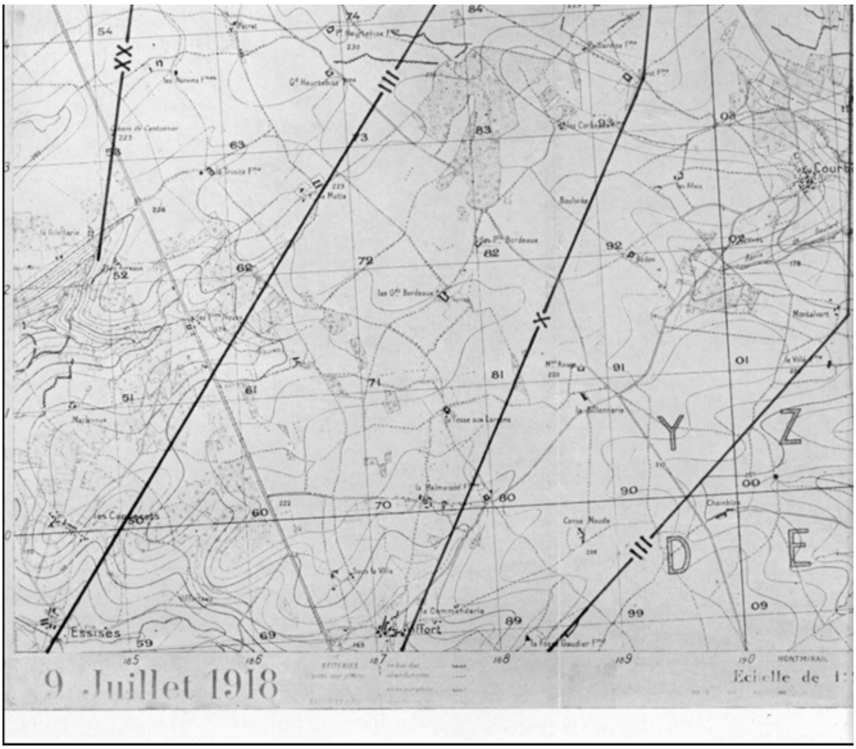
40th Division.
76th Division.
81st Division.
89th Division.
94th Division.
97th Division.
98th Division.

This is a reproduction of the lower two-thirds of the Conde en Brie sheet of the 1:20,000 French Plan Directeur. It has been reduced half-size, to a scale of 1:40,000. The grid square is in kilometers. To avoid possible confusion, it is suggested that only the coordinate numbers on the bottom and left edge of the map be used. The coordinates given in the text locate, in most cases, only the southwest corner of the square concerned.

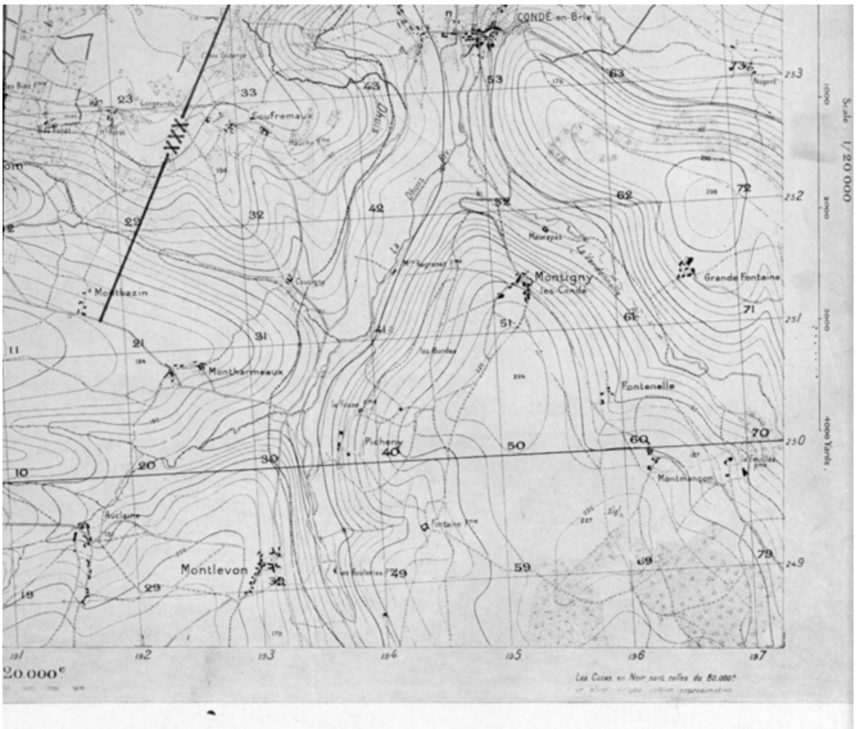


4TH
4
INFANTRY
7TH
7
INFANTRY
30
30T
INFANT
Verdilly
Bois de Barbillon
Brasles
Chierry
Blesmes
Glands
Mont St Père
Fossoy
Bois d'Aigremont
Etampes
Nesles
Marne
T U
Y Z


FORÊT
Courtemont-Varennes
Reuilly
Passy-sur-Marne
Courtlinezy
38TH
38
INFANTRY
FRENCH
125TH DIVISION
Connigis
Monthurel
St Eugène
St Agnan
Bois de Condé
XXX
XXX



9 Juillet 1918
Essises
la Commanderie
la Fosse aux Larrons
la Malmaison Fme
la Billonnerie
les Gds Bordeaux
Boulerée
Montalvert
Chamblon
Sous la Ville
Consé Naude
Y
Z
D
E
XX
MONTMIRAIL



CONDÉ-en-Brie
Coufremaux
XXX
Dhuis
Montbazin
Montharmeaux
Montigny
les-Condé
Grande Fontaine
Fontenelle
Picheny
Montmançon
Auclaine
Montlevon
Scale 1/20 000
4000 Yards
20.000e
Les Cotes en Noir sont celles du 80.000e

The German XXIII Reserve Corps Crosses the Marne

BY COLONEL CONRAD H. LANZA, FA

EDITORIAL NOTE. *This story is to be read in conjunction with "Bridgeheads of the Marne," in the last issue. The same incidents of the last great German attack, at that time discussed from the American point of view, are here told from the standpoint of the attacking German battalions and companies. Leafed in with this issue is a fold-out map to illustrate the action, reprinted from the May-June number. The times given in the story are Allied Daylight Time*.

The Preparation

IN THE last days of May, 1918, the German 10th and 36th Divisions, both first-class divisions, advanced from the Chemin des Dames, forced the crossing of the Aisne, the Vesle, and the Ourcq river lines, and reached the vicinity of the Marne within four days. A wonderful success! Losses had been few; on the other hand the enemy had suffered severely. Morale was high, and the troops were hoping that they would keep going right into Paris.

During the night of 30-31 May, an order was received to hold the line held. The troops did not understand: there seemed to be no great opposition. So they kept on, and next morning went into Chateau Thierry, and east thereof reached the Marne. They received an accurate fire of machine guns and artillery from hostile forces across the Marne. The order to stop was justified. A new enemy was in front, vigorously defending the Marne river. The line stabilized, with the Germans holding the north side of the Marne from Chateau Thierry east, and the Allies the south side.

The Marne varies from 68 to 80 meters in breadth. It was deep, and its current rapid; it was an obstacle. On both sides of the river were hills. The terrain contained forests, cultivated fields, orchards, vineyards, stone villages. The front quickly quieted down, and the farmers returned to their work. By July, wheat was high, and the pastures contained numerous cattle. It was very peaceful. Fighting was limited to artillery fire, and not much of this, and to rare patrol actions, mostly at night. The sector was a quiet one on the long west front.

On 8 June, the 10th and 36th Divisions were withdrawn from line, to near Fére-en-Tardenois for rest and training. Leaves and furloughs were granted, drills were not too numerous, and life was pleasant. Everybody expected that there would be another offensive later on, but they did not know where or when. It was hoped that the next attack would occur at some place where the least resistance might be expected, and not against a difficult front. According to the latest tactics, the attack would be preceded by a powerful rolling barrage, which would break ordinary lines of defense, points of resistance to be brought down later through intimate liaison between

the infantry and the artillery, and special use of trench mortars for reducing villages.

About 1 July, the troops noted that preparations were in progress for some kind of major operation towards the Marne. Numerous batteries, and much ammunition, arrived each night, and were secretly posted in the woods. Dumps were established, and many lines of communication laid. Visiting the front was prohibited. Obviously something was going to happen.

In view of previous victories the morale should have been good at this date. But the men became nervous. Crossing the Marne did not appear to be a place where the least resistance was to be expected. And, one night, a French railroad battery started to fire a problem with Féré-en-Tardenois as the target. Nobody knew where the battery was, but it was estimated that it must be more than 30 kilometers away. It was a 305-mm. battery. There was first a low boom, and then the first shell came along with a whistle, becoming stronger and stronger, finally ending in a tremendous explosion. A house had been struck, and parts of it crashed into the street. The town was full of infantry. The men waited for no orders; they rushed out of town, scattered into the fields, and did not return again until morning, when it was once more calm. Life thereafter was no longer gay. That railroad battery fired frequently at night. It never caused many casualties, but there were some every time, and no man knew who would be the next to be buried. This harassing artillery fire wore down nerves materially.

Officers and men returned from their visits home. They brought back word that the next attack was to be across the Marne, and 15 July was to be D day. Naturally everybody wondered, if the folks back home knew this, whether the enemy did not also know it. They rather thought he would, and this did not improve morale. Still there was no official information as to any attack.

The division commanders received advance secret information which enabled them to draft some orders, but the first real order arrived on 12 July. Both divisions were assigned to the XXIII Reserve Corps, which was commanded by General von Kathen, who had a reputation as a specialist in open warfare. The Corps was to be on the right of the Seventh Army attacking across the Marne, advancing southeast, with Epernay as the Army objective, as one of two jaws of a combined operation to cut off Reims. The other jaw, also directed on Epernay, was to be the First Army, advancing southwest from the plains of Champagne. It was explained that this offensive had a limited objective—the capture of Reims, needed to clear east and west roads and railroads through that city, which would be needed for a more important operation to come later.

The zone of action of the Corps was almost due south. It was to cross the Marne in time to jump off from the railroad just south of the river at 3:50 AM. and then advance to, and hold, the line Min (south of Gland); le Rocq Farm and Chateau; Greves Farm (inc); Les Biez Farm (exc); Coufremaux (exc); Bois de Condé, where connection was to be made with the 200th Division of the VIII Reserve Corps, attacking on the left. This line was to be reached at 10:40 AM. An outpost line was to be pushed forward about a kilometer, but there was no intention to continue the attack after D day. Troops were to dig in, and hold, until Reims had fallen. Whether ground gained would be held after that event would be decided later.

The zone of attack of the Corps was slightly over 6 kilometers wide, but measured around the bends of the Marne it was about 9 kilometers. The enemy in front had been identified by prisoners from patrol actions as the American 3d Division of the French XXXVIII Corps. This corps contained the French 39th Division, on the left of the Americans, and outside the zone of action. The American 28th Division had been identified through deserters last on 11 July, when it was just west of Chateau Thierry, since when it had not been reported. As it had not been engaged in battle, it was assumed that it was somewhere in the vicinity in reserve. As far as G-2 knew, the enemy did not suspect an attack.

The two German divisions had received replacements. Infantry companies averaged around 60 men, there being 4 rifle companies and 1 machine-gun company to each battalion. Infantry regiments were around 1,000 strong; brigades, 3,000; divisions about 5,000. The XXIII Reserve Corps designated the 10th as the right division, and assigned, as the boundary between divisions, the line: Surmelin River—St. Eugene—Ht Foret, all to the 10th Division. Each division decided to attack with two regiments abreast and one in reserve.

There was a powerful force of artillery to cover the attack. The corps retained control of the division artillery until the jumpoff, after which hour each division had 23 batteries at its disposition, exclusive of trench mortars. The corps, with the Army Artillery, could add 90 additional batteries, nearly all heavies, to assist divisions. An artillery preparation was to start at 12:10 midnight, extending until 3:50 AM, to neutralize hostile artillery, machine-gun nests, and trench mortars in the forward areas. Under protection of this preparation the infantry were to cross the Marne by ferries and bridges to be operated and constructed by the engineers. Immediate protection of the infantry while crossing was to be assured by the trench mortars and the infantry's own weapons.

The infantry were to assemble gradually, as they crossed, along the railroad just south of the Marne, until 3:50 AM, at which hour the rolling barrage of gas and HE shell, doubled, was to roll on at the rate of 100 meters in 4 to 5 minutes.

The artillery arranged for special concentrations, where more than normal resistance might be expected, to include:

1. Woods south of Mezy,
2. Fossoy, Crezancy, and Paroy,
3. North edges of woods near l'Herbennerie; Bois d'Aigremont; and Launay,
4. East and west road through le Rocq Farm and Chateau, inclusive,
5. Woods southwest of le Rocq Farm; le Houy Farm, and Greves Farm.

The rolling barrage in difficult terrain was in two lines, otherwise in one. The main barrage, fired by 100-mm. and 150-mm. howitzers, was to be 600 meters in front of the infantry; it used HE shell only. The forward barrage, fired by light guns, was to be 1,200 meters from the infantry, and included gas with HE shell. For the main barrage, one battery was assigned to each 80 meters front; for the forward barrage one battery to each 150 to 200 meters front. The forward barrage stopped on probable lines of resistance, distributing as much gas as possible, until the main barrage caught up; it then regained its distance by broad range jumps. Every hour or

so, a halt of about 6 minutes was provided to rest the infantry.

After the attack order was out, an artillery officer visited each infantry regiment, and to their assembled officers explained the nature of the artillery preparation, barrages, and other fires. He distributed overlays showing just where and when the artillery fire would fall, explaining that it was impracticable to fire on all targets all of the time, but that each target would be fired on at the appropriate time. He invited suggestions, and definitely stated whether the artillery could, or could not, render specific fires asked.

The infantry planned to advance between strongpoints, and then take these by envelopment, or from the rear. Missions of front-line regiments were:

398th Infantry: Cross the Marne opposite le Ru Chailly Farm. Advance southeast, then south to the Fossoy-Crezancy road. Attack Fossoy from the west. To cover the march south past Fossoy, the artillery agreed to furnish a smoke screen, fired by trench mortars northeast of Gland.

6th Grenadiers: Cross the Marne and seize Mezy by direct attack, as this was too close to the front to permit maneuvering. The artillery was to neutralize this village by strong fire from trench mortars. Then advance southwest of Mezy, through woods wherever practicable, until the Bois d'Aigremont was reached, near coordinate 191. Here detachments, detailed in advance, were to turn and attack Crezancy from the west and south.

NOTE: The movements of the foregoing regiments were on divergent lines. To correct this situation it was ordered that the

47th Infantry in division reserve: Cross the river, in rear of leading regiments, and then advance south, and close the interval between the 398th and the 6th Grenadiers.

5th Grenadiers: Cross on both sides of Jaulgonne, move south through woods over the high ground, avoiding the Surmelin valley, until near Connigis. Then change direction and attack west, seizing the Bois de la Jute.

175th Infantry: Cross at Marcilly, Rozay, and near Reuilly. Advance south, to east of Monthurel.

The front to be occupied by the XXIII Reserve Corps was at present held by the 10th Landwehr Division, whose mission was to prevent the enemy from observing anything unusual. This division belonged to the VIII Corps, and was relieved, effective at H hour, when it was to withdraw west to outside the right boundary of the attack zone. It was then to assist the attack by fire action from positions near Gland. It reported that to the best of its information the enemy had no suspicion as to any impending attack, and that there were no indications of any hostile preparations or reenforcements.

The XXIII Reserve Corps, and its two divisions, the 10th and 36th, went to work. There was little time left, and very much to be done. The following information was furnished by the Seventh Army:

CROSSING TIMETABLE

14 July: 12:40 Noon—Moon rises.

8:49 PM—Sun sets.

9:40 PM—End of twilight.

11:59 PM—Moon sets.

15 July: 12:10 AM—Artillery preparation starts. Engineers and labor details move material to the river bank.

1:55 AM—Engineers launch pontoons for ferries, and start bridges.

2:00 AM—Infantry starts for river bank.

2:10 AM—Leading infantry elements cross river by ferry.

2:30 AM—Leading infantry elements advance from south bank towards the railroad.

3:50 AM—Rolling barrage starts. Infantry jumps off from railroad.

4:00 AM—Dawn breaks.

4:51 AM—Sun rises.

10:40 AM—Objectives reached; end of artillery preparation.

8:48 PM—Sun sets.

The infantry were to move on 13 July to new billets closer to the Marne, but at least 5,000 meters north of that river. On 14 July, after dark, they were to move to previously selected places of assembly not more than 500 meters from the Marne, and remain in readiness to cross. As these movements were to be by night, and the billets and selected places were all in woods, regimental and battalion commanders, each with one staff officer, were ordered to locate these places during the day of the 13th. They were also to reconnoiter their respective places for crossing the river. The engineer officers, who were responsible for selecting these places, were detailed as guides, and all hands were warned to take special precautions not to allow themselves to be seen by the enemy.

The engineer officer assigned as guide for the 5th Grenadiers was so unfamiliar with the terrain that he had difficulty in finding his way, or his own signs. The regimental commander thought that if there was trouble in locating routes in broad daylight, it would be almost impracticable to do it at night. He requested authority to make a partial advance before dark, stating it was possible to do so, while avoiding detection by the enemy. He was granted the authority. The other infantry commanders found their places.

While these reconnaissances were being made, the troops were given embarkation and debarkation drills. As it was necessary to use a river other than the Marne for this they had to go a long way to find a suitable place. The drills were held on the 13 and 14 July, and involved marches to and from the drill places which averaged 20 miles each day. To avoid congestion on roads, and to permit each unit to have the boats for a reasonable period, much of the marching was in the middle of the day. The heat was stifling. The roads were very dusty, and the dust rose in clouds above the tree tops. Water in canteens was soon exhausted, and the men were too when they got back to their billets. And then each night, that long-range hostile artillery dropped shells—big ones—around the billets, now close to the front.

The men began to lose confidence. They trusted their own officers, and they had no doubt but that the high command was distinctly superior to anything the Allies could produce. But there was a fear that G-2 was wrong in stating that the enemy had no idea about this attack. It seemed more probable that the enemy did know about it, and was all set to meet it. There had been a few desertions. It was known that an officer, who, in spite of orders, had maps in his possession, had swum across the Marne and had been captured. Some of the trains had been careless as to marching on roads in the daytime. It seemed that the enemy must have noted these things. A river crossing was certainly a dangerous operation, and the men felt that secrecy was a necessary preliminary to success. And then their strengths were weak; the last replacements were not received until the 14th, and this gave an average of only about 70 men to each infantry company. And they had heard that American companies had 200 men! This was another handicap.

The artillery were already in position. All required bridge and crossing materiel was hidden close to the river. Preparations were completed, except for the advance of the infantry into the battle zone. This was to occur after dark on 14 July, but as none had over 8 kilometers to go, no difficulty was anticipated.

The Crossing, Up to 3:50 AM, 15 July

At 8:00 PM, 14 July, hostile (American) artillery fire began to fall rather heavily on certain roads, while the woods near the Marne were very heavily shelled. The infantry had not yet occupied these woods, but they wondered what would happen when they arrived there. Was this firing a sign that the enemy did know about this attack? According to instructions from the Army, the artillery did not reply to this fire, but remained silent. The fire along roads did not cause much inconvenience. When it started there was no one on the roads, and as everybody could see where the fire was falling, infantry commanders arranged to detour around these places, and advanced the hour of departure to allow for this. The night was cloudy, and exceptionally dark, with occasional light showers. Just about the kind of night that would prevent hostile aviation from seeing anything.

The 398th Infantry reached its assembly points in the Bois de Barbillon on time. Some sections of the woods were under fire of enemy artillery; these places were avoided. The 6th Grenadiers also arrived at their posts, about 1,000 meters east of Min Doly, without losses. The 47th Infantry was the only regiment in the 10th Division that failed to assemble all its units on time. Its 2d Battalion had been billeted near le Plessier Farm (2 kms. NNE from Epieds), and were to start south at 10:45 PM, (later advanced to 10:30 PM) to allow for a detour around a point under enemy fire. At 9:30 PM a hostile battery commenced to fire at the Farm, and at the crossroads close by. There was considerable artillery ammunition dumped in the vicinity, and some of it was hit, and commenced to explode. Instead of moving south, several company commanders moved their men north, and failed to arrive at the initial point as prescribed. To avoid losing time, the battalion commander marched off with the balance of the battalion which had been bivouacked south of the area being shelled. He sent the adjutant to locate the missing companies, which he assumed were making a detour to avoid the bombardment of the Farm. That part of the battalion which had departed on time moved cautiously, and arrived at the assembly point just before midnight, but the missing companies did not appear until an hour later.

In the 36th Division, the 5th Grenadiers and the 175th Infantry reached the vicinity of the Marne with only minor delays, and without losses.

At 11:00 PM the enemy artillery fire ceased, except for an occasional large shell, which crashed down in the woods. It was now fairly quiet. Perhaps the enemy was no longer suspicious. The German artillery had not fired a shot, and maybe this had been the right thing to do. Everybody seemed to be present, and so far there had been no great damage. The rain stopped and it began to clear. But the moon was setting, and in the woods it was very dark, so dark that it was impossible to see just who and what was there. It was hoped that the enemy had not seen anything either. The plan seemed to be working according to schedule.

Suddenly, at 11:40 PM, artillery

fire started again. It was in great volume and increased very rapidly. The first impression of the troops in the woods was that their own artillery had advanced the hour for the artillery preparation. Then shells began exploding nearby, and it was realized that it was the enemy. This was unexpected. Now it seemed certain that the Allies knew about the attack. And why did not their own artillery reply? Not a shell went over from their side, and the men felt that they needed protection badly. How could they cross the Marne, in face of that awful hostile fire, if their own artillery did not start their counterbattery? But the artillery had positive orders not to fire until H hour. The gunners stayed by their pieces and obeyed orders; waited impatiently, silent but ready for 12:10 AM.

The first bursts of enemy fire caught the 1st Battalion of the 398th Infantry in the Bois de Barbillon. It arrived without any warning, a mass of shells. The battalion was scattered in all directions. The men threw away their rifles and equipment, and ran. There had been no provision for any such event, and no rallying points had been designated. The men were gone, and for most of them the battle was over. They never returned. Later, when the barrage stopped, the officers tried to reassemble the command. Less than half of the strength of the battalion could be found, and some of these had neither weapons nor ammunition.

Another of the hostile barrages caught the delayed companies of the 47th Infantry in route order on the road north of Mont St. Pere. The first shell landed squarely in the column, killing 2 men and wounding 17 others. A second later, another shell killed 6 and wounded 8 more. The men dispersed, but on account of the terrain, a ravine, were unable to get very far. When the barrage stopped, the officers were able to re-form the companies back of the point where the barrage fell. They made a detour, and after a delay of another hour, finally arrived at the point of assembly prescribed for them.

The 5th Grenadiers, when the enemy artillery fire started, had only a few shells fall near their position, east of Min Doly. It seemed useless to accept the risk of casualties from this fire, so the order was given to advance towards the Marne, as there seemed to be less fire falling in that direction. Trouble started at once. It was very dark, and the officers could not see their men. The guides were unable to find the small flags, which had been previously set out to mark the routes and locations of each company. There was some gas in low places, due to earlier shelling of the enemy. The ground was slippery from the rain, and the men slid into trees, and fell over stumps and roots. They got in each other's way. Now and then a big shell landed somewhere with a great crash, knocking down trees and making a great commotion. Any one near immediately ran away, thinking another shell would certainly arrive shortly in his location. They went in all directions, and in that dark night, their commanding officers could not afterwards find them.

At 12:10—prompt to the second—their own artillery opened a tremendous fire. This gave immediate encouragement to the men. They were now getting some help, and they hoped that the hostile artillery would soon be silenced. The 5th Grenadiers kept on. They were approaching the river when, at 12:30 AM, a terrific artillery barrage fell right on them. Shells before had been considered much too numerous, but compared with what now was

coming over, it had been only a sham. The infantry had no shelter; they were exposed in a wood which had dense underbrush. They could not find their prescribed places, and did not know where to go. The noise of the bursting shells around them was so great that they failed to hear their own artillery. The men thought they were being deserted.

The effect of the bursting shells in the woods was frightful; trees were blown over; fragments ricochetted everywhere. The men all yelled, and ran around in circles trying to find some cover, but there was none. Then more shells came over with a low whistle, and with only a dull explosion. "Gas! gas! Put on masks." Now nobody could see anything. The men felt abandoned; there were howls for and against the artillery. Where were they? Why didn't they do something? The regiment had a light battery, and a pack battery, detailed as accompanying artillery. Why didn't they come forward and do something? Calls went back to the rear, for the artillery—Forward. Men gave way to despair, seeing death before them and no help. Many cried like children, their nerves entirely shattered by that barrage fire.

The accompanying artillery heard the yells for help. They were in readiness in rear of the infantry assembly points. They were expecting to assist the infantry in their attack after the jumpoff, and had not foreseen earlier employment north of the Marne. They had no OP's ready, no telephone lines. But they could not resist these appeals for help. Both batteries started for the Marne.

The light battery, horse drawn, was stopped almost at once, finding it impracticable to move its guns and caissons through the pathless woods and dense undergrowth. But the pack battery found a ravine, and following it, arrived near the Marne River. They went into position. Nobody had located any targets; and none could be seen. It was very dark. Shells were bursting all around, and there was a tremendous roar of fire from across the river, where it seemed that the entire country must be full of targets.

The battery opened fire. Almost immediately they received machine-gun fire. They were unable to determine from where it came. Shortly afterwards, 75-mm. shells began to fall right among them. Some OP had seen them! The ravine was narrow, and lateral movements were impossible. The men and guns were crowded together. Every hostile projectile appeared to hit something. One gun received a direct hit, and went out of commission. Another had its trail shot off, and it could not thereafter be laid. Gas shells arrived, and masks had to be put on. In the pitch dark, and with masks, the gunners were unable to see the aiming posts through the sights. Men died, and the pack animals were blown to bits. The ammunition was hit, and exploding, killed cannonneers at the guns. The order was given to change position to some place where the hostile barrage was not falling. The narrow ravine was now choked with dead and dying animals and men, with exploding ammunition, with broken materiel, and with shells landing continuously. Movement was impossible. Besides no one knew of any new position. The battery just disappeared.

The officers of the 5th Grenadiers made a strenuous effort to restore order. The regimental commander ordered his men to the water, and his officers repeated the command: "Forward! Forward." Leadership was wanted, and any was better than none. The crossings of the Marne were not ready, but the men found cover under the river bank from the barrage. Now came machine-gun

fire. It was still very dark, and luckily the enemy's fire was not accurate. But a large part of the regiment had gone. The equivalent of several companies was later discovered near le Psoutier. The men had gone in this direction as it was downhill, and there was no hostile fire there. Some engineer troops, who should have been busy preparing the crossing for the 5th Grenadiers, were with them, claiming that their pontoons had been too badly damaged by the barrage to make it worth while to go back. Repeated efforts of their officers to move these men forward failed, and they continued to stay there interfering with circulation along the road.

The 175th Infantry escaped the enemy barrages, which fell near but not on them.

Prior to H hour, the engineers had been standing by, ready to construct bridges and operate ferries. The hostile barrages, starting before midnight, severely interfered with their work. Some dumps were damaged by shell fire, and became partly unusable. Even if there had been perfect order, it would have been difficult to move the materiel to the river, but under fire this became terribly hard. There was great confusion, and in the night, within the woods, officers were unrecognized, and commands were disregarded. Everybody yelled at once. In the haste to escape, articles were moved out by men grabbing whatever was closest, and rushing off with it, often without any clear idea of what it was, or where to take it.

Roads and paths over which engineer materiel was to be carried were blocked by heavy fire. It was possible to detour, but this caused long delays. Some men lost their way, and others joined the wrong detail. The materiel began to arrive at destinations, but without order; things needed first failed to arrive until later. The way was then found obstructed by materiel which should not have arrived until a subsequent period. Some places selected for crossing were under barrage fire, and it was impossible to work there. A halt was declared, to see whether the barrages would lift. All stopped work, and watched the terrific artillery fire. Both sides were firing hundreds of batteries; the crash of shells was deafening and continuous. There was no indication that the enemy was being successfully counterbatteried. To many, the Allied artillery fire appeared to be heavier than the German, and yet the latter was, for most of the veterans present, the greatest they had ever seen. The attack was meeting a powerful artillery opposition. It seemed that the enemy was prepared.

After a long wait, no prospect was seen of the enemy artillery fire stopping. If anything it appeared to be becoming stronger, and the barrages stayed right on, as dense as before. It was useless trying to work within them; human nature could not stand it. Fortunately the barrages did not shift, and by 1:00 AM their locations had been pretty well observed. The engineers found new points of crossing, free from shellfire, and established detours, hundreds of meters long. The banks of the river were not high, and ferries could be operated nearly anywhere, but the change caused delays. The bridges were to be primarily for vehicles, and had been located where approaches were easy. New locations had to be found for these, and required fills and excavations, and more time to complete. The river crossing was enormously retarded by the continuous enemy artillery barrages.

After 1:00 AM, work proceeded under modified emergency programs, but confusion increased. The extensive system of telephone lines which had

been installed was shot out by 12:20 AM, and it was impossible for either the engineers or the infantry to keep superior authority informed as to the modifications made in the plan. There was no liaison with the artillery. The OP's could not in the darkness see what their own infantry were doing, and the artillery communications gradually went out also, the last OP at 2:05 AM. The artillery did not know that the infantry were materially delayed. In the absence of information they made an assumption that no news meant that everything was proceeding as intended. They kept to the firing schedules, and sent over concentrations of gas and shell according to program. They prepared to start the rolling barrage, from in front of the railroad along the Marne, as prescribed, at 3:50 AM. never imagining that the infantry might not be ready to follow it.

The 398th Infantry had intended to have their 1st and 3d Battalions cross respectively opposite le Ru Chailly and Barrage Ecluse (this was a river dam). Due to having been caught in the barrage, the 1st Battalion arrived late, and then only had about 70 men. Major von Zwickhardt, the regimental commander, noted this and directed them to cross and close in to the right, leaving a gap which he ordered filled at once by the 2d Battalion, in regimental reserve. The 3d Battalion started over the river on time. It had escaped the barrage, but the movement was slow, as the location of the ferries was changed several times. The south bank of the river had been prepared for crossing by an intense fire of trench mortars, which was so successful that practically no opposition was met, and the troops gained the railroad. But the crossing had been so delayed that, when 3:50 AM arrived, the situation was as follows: The 1st Battalion had disappeared to the right, and nobody knew where it was. The 2d Battalion had only two, and the 3d Battalion only one, company in line. There was no liaison to the left. When the rolling barrage came down, a tremendous machine-gun fire came from all over the front, and the enemy artillery fire seemed to become stronger. It was still very dark, and nobody could see anything. The regimental and battalion commanders decided that, with such a small force, and an apparently strong opposing force, no advance would be made until the balance of the regiment could be brought into line.

The 6th Grenadiers had had no unusual events before starting across the Marne near Mont St. Pere at 2:10 AM. on time. Luck stayed with them; no barrages fell in their vicinity; and the crossing proceeded normally, with only slight losses. The regimental commander noted that the 5th Grenadiers, on his left, appeared to be in serious trouble; he could see heavy artillery and machine-gun fire in their sector. He was not surprised at this, as en route to the river he had met numerous stragglers from the 5th Grenadiers, near le Psoutier, and they had reported that their regiment had been shot to pieces.

The 6th Grenadiers crossed in pontoons holding 18 to 20 men, pulled back and forth by ropes. The trench-mortar batteries covered the crossing. The 1st Battalion on the right, and the 3d on the left, completed crossing by 2:40 AM. The enemy artillery and machine-gun fire was tremendous. It did not cause many casualties, but it gave the impression that the enemy was in overwhelming strength. The troops moved on, and found little opposition. The 1st Battalion reached Mezy and east thereof around 3:10 AM. There were a few Americans in that village, including an OP in the church steeple, which was captured intact. The prisoners belonged to the American 30th Infantry, which confirmed previous

identifications. The OP had been careless as to its local security, and the lieutenant in charge readily admitted it. He was much chagrined at having been taken so easily, but he proceeded to make up for this. He was a loquacious chap, and when brought before S-2, readily answered questions. He informed S-2 that the Americans had known all about the attack for a long time, and that they were all set for it. In addition to the American 3d Division, 3 or 4 other divisions, he wasn't certain which, were close by, each with 16,000 infantry and strong artillery. The American right was supported by special and excellent French shock troops. In rear of all this were counterattack divisions, waiting only for the word to sweep north and drive out all Germans near. In his opinion, the German attack did not have a ghost of a chance of succeeding. They would be very lucky if any escaped what had been prepared for them. This report made a great impression, for it seemed to be corroborated by the tremendous and constantly growing Allied artillery fire, now being supplemented by machine-gun fire.

This report went back as far as the Army Group. With each move it became less impressive, as it was checked against other information. The Army Group estimated that there was just one French division, serial number unknown, in rear of the American 3d Division, and no other troops in this sector. But locally the captured lieutenant's statements had considerable effect.

The 3d Battalion was not so fortunate. It crossed near Charteves, and then formed in 3 lines, 100 meters apart, and advanced. But it met such severe machine-gun fire that movement was paralyzed, and it failed to reach the railroad.

When 3:50 AM arrived, only a part of the 1st Battalion was on the railroad; the 3d Battalion was stopped near the river, and the 2d Battalion was about to cross in reserve. The rolling barrage came down, and a perfectly infernal fire of artillery and machine guns started in opposition. There was no information as to the whereabouts of the troops to the right and left. The flanks were unprotected. The location of the enemy could not be determined. There were no definite targets. But from reports of prisoners, and the volume of enemy fire, the latter seemed to be in great strength. The regiment decided to wait until daylight enabled a better estimate of the situation to be made, and orders were issued not to follow the barrage, but to form in readiness along the railroad.

In the 5th Grenadiers, the 1st Battalion, after its encounter with the hostile barrage assembled a part of its men under the river bank. The engineers who should have provided a ferry had disappeared, and their boats were concealed in the woods and abandoned, several hundreds of meters from the Marne. The crossing of this battalion broke down.

The rifle battalion had been to the left. They, too, had been in the barrage, but they rallied two companies. These crossed the river nearly on time northwest of Varennes. They had only two boats. The first boat was overloaded. No sooner had it cleared the shore than a machine gun started to fire over it. Everybody tried to lie down at once. There were violent remarks as to the artillery having failed to carry out its mission of neutralizing hostile infantry elements. Fortunately the machine gun fired high; nobody was hit, and the boat reached the other side. The bank was high, and there was considerable trouble for the men, loaded with equipment, getting out of the water.

No sooner were they up than they

moved forward, and almost at once ran into barbed wire. None of the OP's had reported this wire, and it was not on the map. Just back of it was a trench, occupied. In the night, the men advanced. If their artillery had not cut the wire, they had neutralized the trench, as the enemy in it were found cowering in fear, seeking shelter from artillery shells. The Grenadiers jumped in. A hand-to-hand fight resulted, but the Grenadiers were on top and won. But it was now 3:50 AM, and they were not at the railroad.

The 2d Battalion of the 5th Grenadiers had been in regimental reserve, in rear, and had escaped the enemy barrage. It was ordered to replace the 1st Battalion, and came down through the shell-swept zone. Just as they reached the Marne, the barrage came right down on them. One machine gun was destroyed, and the battalion dispersed. The pontoons which were being carried were dropped, and later four out of six were found to be so damaged as to be unusable. This barrage did not last so long, and when it stopped the men were reassembled, not having had time to flee far. As it seemed probable that the barrage might fall again at any time, the two serviceable boats were removed to what appeared to be a safer place. It was about 3:15 AM when it became possible to send the first detachments across the Marne, near the Jaulgonne Chateau. When 3:50 arrived, only a fraction of the command were on the south bank, and none had reached the railroad.

The 175th Infantry, by suitable detours, avoided the barrages along the river. They crossed on both sides of Rozay, after an intense fire of trench mortars and their own machine guns had swept the far bank. They were nearly on schedule, and as the railroad in their zone of action was almost at the river's edge, they were on the line of departure as soon as they had crossed. They were ready to jump off at 3:50 AM. They had liaison to their left, but not with the 5th Grenadiers to their right.

(*To be concluded*)

—Courtesy "New York National Guardsman"

"ANDERSON USED TO BE IN THE NAVY"

THE EDITORIAL STAFF being on the unserviceable list, it was necessary, a couple of months ago, to send a reconnaissance party into the field at Fort Bragg, N. C., and locate Captain Stephen C. Lombard, 17th FA, to whom, herewith, our sincere thanks. Captain Lombard had spent the better part of the last five years at the Field Artillery School, where he wrote, edited, proofed, paged, assembled, and supervised the issue of enough words, laid end to end, to—but let it pass. It was obvious that he was the people's choice.

Well might the last JOURNAL have included the words, "Edited by Stephen C. Lombard," but that officer declined vigorously, saying he did not wish to be followed, for the next year or so, by the accumulation of insurance ads, stock-selling schemes and the like, which the postman unloads on an editor.

Not only are we grateful to him for doing our work for us, but we appreciate the restraint he exercised with respect to our desk. A very positive, strong-willed fellow, not to say stubborn—how did you like that three-color frontispiece, by the way?—and a member of the clean-desk school, he burrowed through the detritus to avail himself only of his legal right to facing distance—about 18 inches.

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THIS IS *not* the dog and pony show number of the JOURNAL. The dog, it appears, will carry a message under fire because he doesn't know any better. And the horse will carry a man for the same reason. (Ours does.) More pictures of horses appear in the JOURNAL than do motors because a motor will stand still for the picture, and that removes the sporting element of the thing May not motorization be reducing, rapidly, the cadre of trained and experienced horsemen still necessary to an army? Polo, hunt, and horse-show people will keep single-mount riding alive, but we soon may be short a good many draft experts of the type of our former Chiefs, Major General William J. Snow, and Major General Fred T. Austin, and of Colonel William P. Ennis, now at Fort Hoyle. Until a new model horse is devised, the writings of these distinguished officers, in old files of the JOURNAL, still afford the next-to-last word on the subject.

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A GOOD WAY to get yourself promoted is to be elected to the Executive Council of this Association. In January Brigadier General McNair was starred; last issue we had to stop the press to change Brigadier to Major General in the case of General William S. Key, and just now Colonel William Bryden has been elevated to Brigadier. "The name," General Bryden told us last fall, "is not William *J*. Bryden. You're thinking of William J. Bryan." This, because you gentlemen who entrusted your proxies to the secretary voted the *J*. in.

The Association extends its congratulations.

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MAJOR Basil H. Perry, commanding the 68th FA (Mecz), at Fort Knox, "would like to invite . . . attention to

the fact that . . . the Regular Officers assigned to the 68th . . . belong to the Association to the tune of 100 per cent."

A good tune, too, and well-played, 68th. Major E. C. Ewert, GSC, caught you rolling up to the gun marker here:

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CAPTAIN C. A. KAISER, FA-Res., whose signal accomplishment it was to be first in the field with a 100-percent membership, for the Fort Lewis CCC District, of which he is adjutant, was threatened with loss of this proud rating when a non-member was ordered into the district. But not for long. He signed him up.

Major E. R. Roberts sends in 23 new memberships from the 119th FA, not overlooking the medical officer.

Captain Frank W. Crary sends in seven subscriptions, and Captain T. S. Gunby, five.

One-Hundred-Percent Units

Fort Lewis CCC District
111th FA (Va. N. G.)
68th FA (Mecz)

New Members Secured By

Col. W. H. Sands, 111th FA	48
Maj. E. R. Roberts	23
Maj. J. H. Fye	16
Capt. C. A. Kaiser. Res	15
Capt. F. W. Crary	7
Maj. T. C. McCormick	5
Capt. T. S. Gunby	5

LAST ISSUE you were told of the achievement of Colonel William H. Sands, 111th FA, Virginia National Guard, in attaining 100-percent membership in the Field Artillery Association for his regiment. Inside of 30 days he had secured 48 new memberships. After somewhat of a struggle we secured his picture:

COLONEL WM. H. SANDS, 111TH FA

Despite our decision, arrived at with regret, not to publish regimental coats-of-arms because, without color, justice could not be done to them, and color printing is almost prohibitive in price, we do the best we can with the 111th Field Artillery, and include a small cut of their regimental insignia, just so you may know, when you see this insignia

on a coat lapel, that the wearer belongs to an outfit with spirit. "It was no trouble to sell the JOURNAL," writes Colonel Sands, graciously, "the JOURNAL sells itself."

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IT IS DIFFICULT to credit some of our most active workers, because they're so modest about it. By their locations and their regimental designations, some of our new members must owe their introduction to the Association to, for instance, Major Alan Campbell, and Major John H. Carriker. Those had to be G-2'd, but Captain William B. Walters mimeographed a letter to each artillery officer in the Denver District, and Major John H. Fye, Captain Russell Mabie, and Captain Emmet A. Niblack are others who, we know, are busy undermining apathy. So are Major Thomas C. McCormick, Major H. N. Krenkel, FA-Res., Capt. L. V. Miller, 185th FA, Lt. Col. N. N. Polk, and for the rest, we wish we knew who they are, for they are doing good work.

We don't think this JOURNAL is the best of the service publications, but if it ever should become so, the credit will not belong up here, but to those in the field who don't hoard up their Field Artillery spirit to expend around a piano.

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LAST FALL the JOURNAL included Fairfax Downey's "Field Artillery Song—1936 Revision," in which one of the lines was: "Hear the bold bugles blow—amplified by radio." To qualify himself on the witness stand as Soothsayer, First Class, Mr. Downey sends in the following clipping:

Washington, June 5 (AP).—Some of the romance of the Army faded today when the Air Corps announced that it is using mechanical devices to play bugle calls without buglers.

The "Air Corps News" said that a control tower operator has taken over the duties of buglers at Mitchel Field, N. Y.

"By means of a phonograph with a crystal pickup, an amplifier and two high-quality loud speakers," it explained, "bugle calls having exceptional clarity and perfection are played.

"An added feature, march music, is played four times daily. 'The Star Spangled Banner' is played for retreat, and when reviews are scheduled troops march to the strains of the best bands in the land."

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THE THANKS of the JOURNAL are due Lt. Col. H. M. Busby, G.S.C. (FA), for the preparation and editing, for our purposes, of the General Staff study of Italian Field Artillery in the Ethiopian Campaign, our leading article.

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ARTILLERY, artillery, and more artillery! That (for the benefit of those who have, perhaps, put Colonel Conrad Lanza's recent articles down unread, as being just more World War history) is his main thesis. There has been little history written from which the junior officer will derive as much. There are things that happen in war; to be guarded against; not to be suspected, perhaps, unless warned by the voice of experience. We nominate Colonel Lanza as the Voice.

Colonel Robert R. McCormick, publisher of the *Chicago Tribune*, seconded the nomination in a column leader editorial May 16th, which began:

"In a recent issue of that well-written and interesting publication. THE FIELD ARTILLERY JOURNAL, Col. Conrad Lanza contributes an impressive critique on the artillery support of the infantry in

the A.E.F. With European governments breathlessly preparing for another great war and America no longer complaisant over its ability to keep out of other people's quarrels. Col. Lanza's review of the shortcomings of our methods in the late conflict gives occasion for serious reflection and we hope remedial action by our high command. It is not excessive, we think, to say that Col. Lanza's article is in quality not unworthy to be put alongside the classic essay of Du Picq."

The Lanza articles long have breathed a skepticism toward utter disappearance of position warfare. Toledo, Oviedo, Madrid, San Sebastian, Bilbao, Santander. . . .???

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The Pennsylvania Guardsman points out that on the lawn of the Winder Bldg., Washington, occupied almost exclusively by the Army General Staff, there is a recruiting poster—for the Navy. . . . Cadet, First Class, Charles B. Hines, USMA, won the U. S. Field Artillery Association Cup for cadet jumping at the recent West Point Horse Show.

●

The 23d Engineers Society, G.P.O., Box 423, New York City, is sponsoring a plan to help ex-service organizations find missing members, and to promote attendance at reunions during the American Legion convention in New York September 20-23. . . . Thirteen sets of brothers are found in 3d Bn 80th FA, Ft. DesMoines, which recently featured a father and son as noncoms in the same outfit. . . Regimental Hq nine of 77th FA, Fort D. A. Russell, defeats Serv Btry 82d FA of Fort Bliss, 28 to 2, and follows with 9-2 win over Hq 2d Bn 82d FA.

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Ohio's 135th FA (Col. Carl A. Shem), which celebrates its centennial in 1939, has led the 37th Division in attendance for 18 of the last 22 months, and at no time during that period has been lower than second.

●

Florida's 116th FA has, for the past two years, won the Major General Grey attendance trophy. In 1936, batteries of the regiment took the first nine places in attendance ratings from the total 45 organizations in the state.

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HAVE YOU DONE YOUR PART FOR THE GROWTH OF THE UNITED STATES FIELD ARTILLERY ASSOCIATION

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